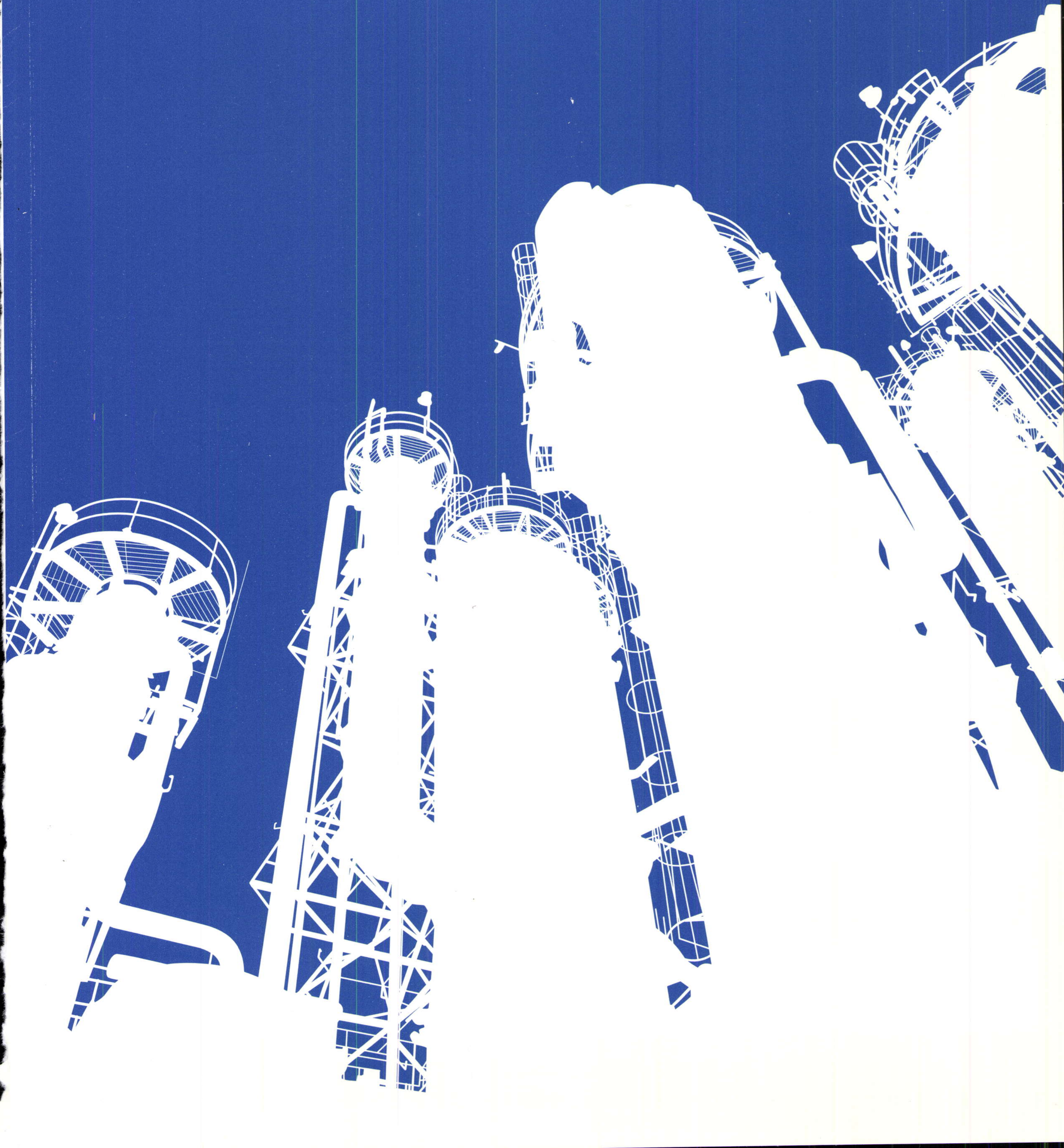
Union Carbide Corporation **Annual Report 1991**



Financial Highlights

Dollar amounts in millions (except per share figures)	1991	1990[a]
For the Year		
Sales	$ 4,877	$ 5,238
Income (loss) from continuing operations	(116)[b]	188[c]
Per common share—Primary	(1.06)[b]	1.34[c]
—Fully diluted	(1.06)[b]	1.34[c]
Net income (loss)—common stockholders	(28)[b]	308[c]
Per common share—Primary	(0.22)[b]	2.19[c]
—Fully diluted	(0.22)[b]	2.13[c]
Dividends	126	138
Per common share	1.00	1.00
Capital expenditures	400	381
At Year-End		
Total assets	$ 6,826	$ 7,389
Total debt	2,442	2,883
UCC stockholders' equity	2,239	2,373
Per common share	17.55	18.88
Common shares outstanding (thousands)	127,607	125,674
Number of common stockholders	61,884	63,927
Number of employees	16,705	17,722

a) Restated to reflect the proposed spin-off of the Industrial Gases business to shareholders (see Note 3 on page 32).

b) Includes an after-tax special charge of $160 million, or $1.25 per common share primary and fully diluted, for costs associated with the Corporation's profit improvement program (see Note 6 on page 34), and a charge of $22 million, or $0.17 per common share primary and fully diluted, in connection with the sale and wind-down of the transformer retrofill service business of the Unison Transformer Services subsidiary (see Note 7 on page 35).

c) Includes a charge of $86 million, or $0.61 per common share primary ($0.56 per common share fully diluted), from the sale of a 50 percent interest in the carbon products business (see Note 4 on page 33), largely offset by gains aggregating $70 million, or $0.50 per common share primary ($0.46 per common share fully diluted), from the sale of the primary alcohol ethoxylates and polysilicon businesses and the Corporation's 50 percent interest in KEMET Electronics Corporation.

Union Carbide will mark its 75th anniversary in 1992. But the company that exists today is very different from the one that started the petrochemical industry in the 1920's and was the conglomerate that included metals, atmospheric gases, dry cell batteries, consumer products, and a raft of other businesses at various times along the way.

The spin-off of our Industrial Gases business to shareholders around mid-year 1992 is the last major step in the restructuring of the company. We think it's a significant plus for Union Carbide and the gases business, and for shareholders, who will then own shares in two sharply focused companies instead of one hybrid.

With the spin-off, Union Carbide takes on a new identity. No longer the large conglomerate of past years, we've become a tightly focused basic chemical company with the industry's most advanced process technologies and some of the most efficient large-scale chemical production facilities found anywhere in the world.

We are planting our flag in basic chemicals, the very segment of the petrochemical industry that a number of other companies are abandoning, because it's the segment in which Union Carbide can, by any measure, be the best in the business.

Once the spin-off of our Industrial Gases business is completed, Union Carbide will be a $5 billion chemical company with a clearly defined strategic direction based upon existing leadership positions in catalysis and chemical processes. Our corporate strategy, in a nutshell, is to be a uniquely advantaged global chemical company recognized as the low-cost, preferred supplier in our core businesses.

Some two-thirds of our businesses already have significant competitive advantages by virtue of market share and technology. For example, in ethylene oxide and polyethylene, our two largest volume businesses, we have significant process cost advantages over producers in every major market of the world.

At the same time, our portfolio includes a number of noncyclical businesses — among them wire and cable insulation, solvents and coatings, technology licensing, and several specialty chemical businesses — whose record of steady earnings can support a dividend to shareholders even at the bottom of the chemical business cycle.

But to gain maximum benefit from our strengths we need to address some legacies of the past. In the transformation over seven years from a conglomerate with 110,000 employees to a sharply focused chemical company of 17,000 employees worldwide, some of the high-cost structure that characterized the old company hangs on.

We are rapidly reshaping structure and work processes to fit our new strategy and direction. We are streamlining operations and reaching into every level of the Corporation to remove unnecessary costs and other organizational impediments that could keep us from achieving our low-cost, preferred supplier objective.

Our work simplification program, covered in more detail in the report that follows this letter, moved ahead of schedule in 1991. We're now doing a lot more than we thought possible, and doing it faster. As a result, we are encouraged to believe that we can achieve a cost reduction goal of $400 million a year by the end of 1994 — double our original target for the chemical company without Industrial Gases. The work is already improving productivity at virtually every level of our business.

So we enter 1992 with great confidence. As for the year just ended, 1991 was clearly a roller coaster. Margins were squeezed by the recession, by new capacity coming on stream around the world, and by a spike in raw material costs at the start of the fourth quarter.

The explosion at our Seadrift, Tex., plant, which tragically took the life of a contractor's employee, also resulted in lost profits for the year of $60 million. Disruption to customers was minimal and virtually no market share was lost.

For the year we reported a net loss of $28 million, compared to net income of $308 million in 1990. Included in the loss was a special charge associated with our profit improvement program that totaled $167 million. Without the special charge, net income for the year would have been $139 million. With the Seadrift accident behind us and the operating improvements already implemented, financial results should show some improvement in 1992. But it's clear that prices and margins will continue to feel the effects of excess capacity in world markets.

In the meantime, we will continue to streamline our Chemicals & Plastics businesses, trim budgets, constrain capital spending and keep tight control of working capital. And as previously announced, we intend to sell an additional $500 million of nonstrategic assets over the next two years to reduce corporate debt. We began with the announcement that we would sell the worldwide OrganoSilicon Products, Systems and Services group, a transaction we expect to complete by the end of 1992.

We do not doubt that the next few years will be difficult. But our people have done a tremendous job of coping with the stresses and difficulties that attend major changes. They care about their careers, of course, but they care deeply about this company, as well. They are determined to deliver the outstanding performance on behalf of customers and shareholders that all of us know Union Carbide is capable of.

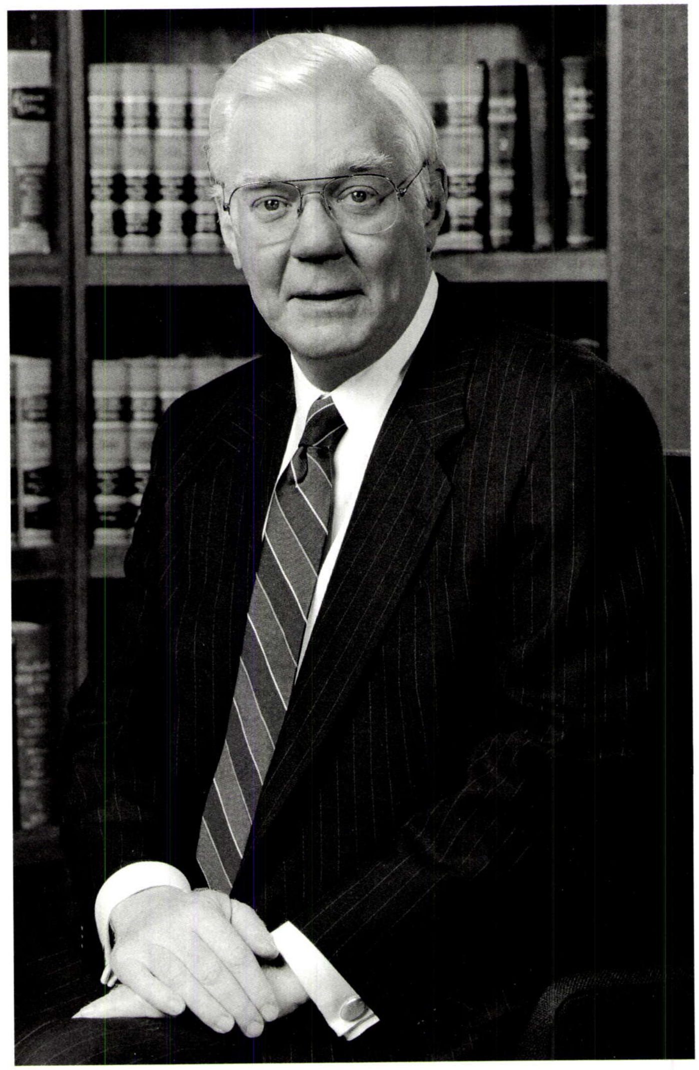
The actions we've taken to make Union Carbide a more competitive corporation are serving us well. We have also made great strides in improving our environmental performance, described in detail in our recently published Environmental Progress Report. We encourage shareholders to write to our Public Affairs Department for copies.

Thus we enter 1992, Union Carbide's 75th anniversary year, with our eyes on the company we're becoming, not the company we've been, fitted for the future, with the best chance in many years of performing up to our potential.

On a personal note, Harry J. Gray, who has served on the Board with distinction for nearly 11 years, will not stand for re-election in accordance with the Board's retirement policy. His experience, wisdom and unflagging support will be greatly missed.

Robert D. Kennedy

Robert D. Kennedy
February 10, 1992



Chairman and Chief Executive Officer Robert D. Kennedy

Profit Improvement Efforts Well Under Way Throughout Corporation

Union Carbide is in the midst of an initiative that will change the Corporation profoundly and permanently.

Many of Union Carbide's Chemicals & Plastics businesses are cyclical. But cyclicality is not fatal. Automobile, primary metal, glass, paper and scores of other industries are also cyclical. At issue for Union Carbide is whether or not, through its leading low-cost process technology and world-scale plants, the company can achieve a genuine low-cost position, top to bottom; that is, be profitable at the bottom of the cycle when others cannot and produce returns, averaged over the full course of the chemical industry cycle, that exceed the cost of capital.

Union Carbide clearly is not there yet; it has not shed all of the costly legacies of the former organization of nearly 110,000 employees. Despite the advantages of leading-edge technology and economies of scale, excessive costs in the system have kept the Corporation from reaping the full benefit of a low-cost supplier position. Removing those costs was, and remains, the goal of the profit improvement program announced a year ago.

Union Carbide is out to eliminate unproductive work and other profit detractors in all of its businesses — to reduce costs, improve efficiency and enhance the earnings of both the cyclical and noncyclical businesses in the Union Carbide portfolio.

The profit improvement goal set in 1990 was to reduce costs by the end of 1993 by $250 million a year through a combination of reducing fixed costs, improving productivity and turning around or divesting underperforming assets. That work has advanced even faster than planned. The $250 million target, which included a $50 million contribution from Union Carbide Industrial Gases (UCIG), has now been raised to $400 million of cost reductions by the end of 1994 for the Corporation alone.

Not all of the savings will reach the bottom line. Because competitors are cutting costs, market forces will require some sharing of cost reductions with customers. And permanent cost reductions will, in many instances, necessitate nonrecurring costs for new systems, facilities and other capital or expense items. However, the net gain will continue to grow as the Corporation approaches its cost reduction goal.

These cost reduction efforts stem from a quality process initiative Union Carbide began implementing in the late 1980's. It led to better ways of getting work done and gave employees greater responsibility for their work. The idea now is to accelerate the benefits and make dramatic changes in the way Union Carbide operates.

The cost reductions will be achieved in all facets of the Corporation's operations. Nearly a dozen major programs, each encompassing several smaller projects, will account for more than $200 million of savings. Scores of other projects will have to be completed throughout the company to take Union Carbide the rest of the way to its $400 million cost reduction goal.

Cost-Savings: From Where?

Large-scale cost reductions are occurring in manufacturing and distribution as well as sales and administration. In addition, as research and development activities focus more sharply on supporting Union Carbide's competitively advantaged technologies, costs in this area will also be reduced.

Examples of meaningful cost-savings activities throughout Union Carbide include the following:

- In 1991 the Corporation spent about $300 million on maintenance and repairs, which typically account for more than one-third of the fixed costs at major chemical facilities. Initiatives begun at the Taft, La., plant are aimed at increasing productivity and reducing maintenance costs by 15-20 percent when fully implemented. The initiatives, to be adopted throughout all Union Carbide manufacturing facilities, include turning over far greater day-to-day responsibility for production units to teams of operating *and* maintenance people; reducing maintenance costs by simplifying work order planning and preparation processes; and enabling technicians to plan and schedule their own maintenance work.
- In 1991, distribution activities cost about $570 million. Several initiatives are under way in the Industrial Chemicals, Solvents, and Polyolefins Divisions to improve distribution efficiency and effectiveness.
- The Solvents and Coatings Materials and Industrial Chemicals Divisions are working on several major improvements in product delivery and customer service:
  - — Reducing staffing requirements by 30-40 percent at the same time that customer service is improved by consolidating nine sales support and customer service operations at a single location in Houston, Tex.
  - — Reducing inventory levels by 20 percent through the use of new computerized sales forecasting and inventory management systems.

— Reducing the size of barge and leased rail car fleets and improving loading, scheduling and maintenance procedures for the rest of the fleet and for tank trucks.

- The Specialty Chemicals Division is reducing the size of support departments at its South Charleston, W. Va., operation by up to 17 percent by setting up self-directed teams composed of production, laboratory, maintenance and distribution personnel. The ratio of "hands-on" operating people to total personnel in the plant should soon approach that of the best companies in the chemical business. As a result, more production engineers are to focus on process improvements, which will lead to reduced waste generation and lower product costs.
- At the Corporation's Seadrift, Tex., and Taft, La., sites, a new integrated computer software system employed by Polyolefins Division logistics excellence teams is improving the accuracy and efficiency of forecasting and scheduling. About $7 million was saved in 1991 — more than four times the Polyolefins Division's original target. The system also has led to improved production in a number of polyethylene reactors. The improvements are yielding five percent more top-of-the-line product, reducing reprocessing costs, and enhancing revenues.

Additional Initiatives Under Way

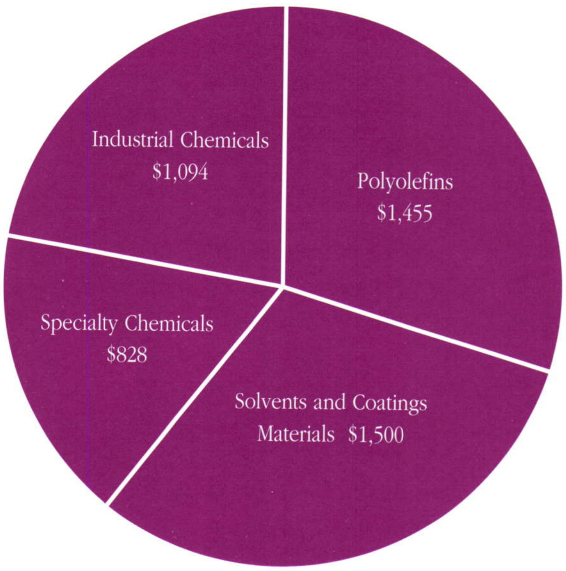
Other initiatives under way include:

- Improving worldwide business management through a simplified and streamlined business planning system that has substantially shortened the business planning cycle.
- Reducing product inventory levels in Europe by up to 20 percent through the use of better sales forecasting models, and operating there with far fewer staff people as a result of new order processing procedures.
- Improving cash-flow management to make more efficient use of working capital and reduce interest charges.

Throughout Union Carbide, employees are implementing sweeping work process changes that will touch virtually every operation in the Corporation. When completed, these changes should secure Union Carbide's place as a highly focused and uniquely advantaged global chemical corporation, recognized as the low-cost and preferred supplier in its core businesses, producing competitive returns for shareholders over the full course of the chemical industry cycle.

Union Carbide Corporation

Sales: $4,877 million



Union Carbide buys liquefied petroleum gas and naphtha and makes ethylene and propylene. Union Carbide then uses state-of-the-art process technologies to convert manufactured and purchased ethylene and propylene into products that include polyethylene (the world's most widely used plastic) for pipe, electrical insulation, wrap, bags, bottles and other products; ethylene oxide/glycol and derivatives for antifreeze, polyester fiber, polyester film and other uses; and other higher-value chemicals and polymers that it markets. Union Carbide also licenses its key olefins-based technologies to others. In addition, Union Carbide has specialty businesses outside the olefins chain of chemicals, including technology licensing and services.

The leading Union Carbide end-markets as a percentage of sales are:

• paints, coatings and adhesives	20%
• film, molding and extrusion	19%
• wire and cable	7%
• textiles	6%
• agricultural and food products	5%
• automotive, including antifreeze	4%
• household and personal care	4%
• oil and gas	4%
• chemical intermediates	3%

INDUSTRIAL CHEMICALS

Sales: $1,094 million

Industrial Chemicals is the world's leading producer of ethylene oxide and its derivatives, including ethylene glycol, which is used for polyester fiber, resin and film; automotive antifreeze; and other products. The Division manufactures about three-quarters of Union Carbide's ethylene and more than one-half of its propylene requirements. Ethylene and propylene are the key raw materials for Union Carbide's olefins chain businesses.

• Ethylene oxide/glycol • Ethanolamines • Ethyleneamines • TERGITOL and TRITON surfactants • Heat-transfer fluids • Runway and aircraft deicers • CARBOWAX polyethylene glycols • Crystal products

POLYOLEFINS

Sales: $1,455 million

Polyolefins is a leading manufacturer of polyethylene, the world's most widely used plastic. The Division also licenses its UNIPOL process technology, the world's most cost-efficient and versatile method of manufacturing polyethylene and polypropylene.

• Polyethylene • Specialty polyolefins • UNIPOL polyethylene licensing • UNIPOL polypropylene licensing • Post-consumer recycled plastics

SOLVENTS AND COATINGS MATERIALS

Sales: $1,500 million

Solvents and Coatings Materials is a leading worldwide supplier of solvents and resins to the coatings industry. It is a leading producer of latex for the paint industry and of high-performance resins, intermediates and additives for adhesives, packaging, magnetic recording tapes and discs, and maintenance and marine coatings.

• Alcohols • Glycol ethers • Ketones • Esters • Coatings resins • Latexes • Acrylic monomers • Vinyl acetate

SPECIALTY CHEMICALS

Sales: $828 million

Specialty Chemicals manufactures and markets a large proportion of Union Carbide's specialty products, both within and outside the olefins chain. The organization targets sharply defined market segments for many of Union Carbide's technologies.

• Acrolein and acrolein derivatives • Ethylidene norbornene • Biocides • Solvents • Water-soluble polymers • Silicones • Personal care products • Polyester modifiers • Urethane additives • Bio-materials systems • Plastic additive systems • Hydraulic fluids • Synthetic lubricants • Organic coating systems • Catalysts • Gas treating systems • Adsorbents • Molecular sieves • Hydrogen recovery/purification • Acid gas removal • Hydrocarbon separations • Heat-transfer fluids

Overview of Continuing Operations

Union Carbide reported a 1991 after-tax loss from continuing operations (excluding the Industrial Gases business) of $116 million as compared to income of $188 million in 1990 and $530 million in 1989. Current year results were affected by a poor economic environment for the chemicals and plastics industry; lost profits because of the Seadrift, Tex., plant explosion; and special charges related to a number of actions taken to reduce costs and to restructure the business portfolio.

Chemicals & Plastics worldwide sales declined seven percent in 1991 to $4,877 million, reflecting deteriorating macro-economic conditions that caused selling prices for major chemical product lines to fall during the year. Weak demand and industry overcapacity limited the ability to raise prices sufficiently to offset rapidly increasing feedstock costs. All Divisions registered sales decreases, with Industrial Chemicals down six percent to $1,094 million; Polyolefins down 12 percent to $1,455 million; Solvents and Coatings Materials down one percent to $1,500 million; and Specialty Chemicals down nine percent to $828 million. Margins decreased dramatically because of rapidly rising feedstock costs, coupled with the inability to raise prices.

In addition to the weak industry environment, Union Carbide was adversely affected by the explosion at the Seadrift plant in March 1991 that shutdown major ethylene, polyethylene and ethylene oxide units. While insurance proceeds are sufficient to cover the cost of rebuilding the damaged units, lost pre-tax profits because of lost production approximated $96 million in 1991.

Programs initiated by the Chemicals & Plastics Divisions in the late 1980's to improve quality through work process redesign were accelerated and expanded across divisional lines and to corporate groups in 1991. In addition actions were taken by two of the Corporation's largest joint ventures, UOP and UCAR Carbon, to restructure elements of their respective businesses. Special charges totaling $209 million before-tax ($160 million after-tax, or $1.25 per share) were recognized in the second half of 1991 to reflect costs associated with the profit improvement program (severance and facility consolidation costs), as well as joint venture restructuring accruals. Certain legal and other expenses and costs associated with the Industrial Gases spin-off were also included in the special charge. In addition to the special charge, the Corporation incurred pre-tax losses of $35 million related to the sale and wind-down of the Unison transformer retrofill business in 1991.

While overall operating performance was obviously unsatisfactory in 1991, a number of positive developments occurred, including continued growth in UNIPOL and Oxo licensing; opening of the first full-scale, multiplastics recycling facility in the U.S.; introduction of new polyethylene resins, coatings intermediates and specialty products and services; and integration of the TRITON surfactants business. Work continues on a new ethylene glycol plant in Prentiss, Alberta, Canada, a new specialty surfactants plant in South Charleston, W.Va., and two new latex facilities overseas.

The operating environment in 1992 will be very challenging. Capacity well in excess of demand will likely keep margins at unsatisfactory levels, especially until domestic and overseas economies recover. While feedstock and energy cost declines in early 1992 will reduce margin pressure somewhat, significant sustained improvement in operating results will only come from continued emphasis on cost reduction through work process changes and other efficiency improvements. The absence of the relatively stable earnings stream of the Industrial Gases business will increase Union Carbide's cyclicality. However, actions taken in recent years to renew manufacturing facilities and technologies, improve the quality of the business portfolio and control costs should mitigate the effects of the business cycle and enable the Divisions to focus their resources and energies on being the best at what they already do well, as described in the sections that follow.

In addition to strengthening its Chemicals & Plastics operations, Union Carbide intends to strengthen its financial position by selling certain strong but nonstrategic businesses and other assets for an estimated $500 million over the next two years, using the proceeds to reduce debt. In this area, the Corporation has already announced its intention to sell the worldwide OrganoSilicon Products, Systems and Services group of businesses. Through the use of these divestiture proceeds, as well as proceeds from Industrial Gases' repayment of outstanding debt to the Corporation in connection with the spin-off, Union Carbide expects to reduce its ratio of debt to capital from 52 percent at the end of 1991 to less than 40 percent by the end of 1993.

Industrial Chemicals

Ashley W. Lutz, President

The Industrial Chemicals Division is the world's leading producer of ethylene oxide and its derivatives, including ethylene glycol. In 1991, the Division confronted a deepening worldwide recession, the continuing downturn in the chemical industry business cycle and the effects of an explosion that took its Seadrift, Tex., ethylene oxide facility out of service for most of the year. Financial results for Industrial Chemicals reflect these difficult conditions.

At the same time, Industrial Chemicals people made the most of a tough year by overcoming obstacles, meeting customer needs and paving the way for improved profit performance. The Division's response to the Seadrift explosion is a good example. Faced with the loss of critical production facilities for ethylene oxide, ethylene glycol and ethylene oxide derivatives, Division employees — in every component of the business — pulled together in a strong coordinated effort to ensure that customer needs were met.

The ethylene glycol business continued to improve its world leadership position with a strong showing in the domestic and Far Eastern polyester markets. Further expansion was limited only because of limited product availability. Although the antifreeze market contracted significantly during the year, causing glycol sales to decline, Industrial Chemicals successfully broadened its customer base by becoming a major supplier to an increasing number of leading antifreeze producers around the nation.

Design and engineering work continued on schedule for a new 660 million-pound ethylene glycol plant in Prentiss, Alberta, Canada, that will enable Industrial Chemicals to capitalize on the rapidly growing demand in Far Eastern markets for polyester fiber and film. This will boost total capacity at Prentiss to 1.3 billion pounds.

When the plant opens in 1994, it will be among the most cost-effective of its kind in the world, and it will enjoy a sizable ethylene feedstock cost advantage over similar plants in the U.S., further bolstering the Division's leadership position in world ethylene glycol markets. The facility is being constructed jointly with three Asian partners, with Union Carbide holding a 50 percent ownership.

Throughout the year, the Division continued to streamline operations and improve operating efficiencies. The Taft II ethylene oxide unit and the ethylene units at Taft and Texas City set production records.

A centralized glycol customer center is being established in Houston, Tex., to improve service. The facility, due on line in mid-1992, will have leading-edge electronic communications capabilities and will combine all aspects of production planning, order processing, pricing, invoicing, shipping, contract administration and inventory control into one highly focused activity — at one location.

The Division's ethylene oxide derivatives businesses racked up impressive gains in 1991. The TRITON surfactant and alkylphenol business, acquired from Rohm and Haas Company late in 1990, proved to be a major contributor to bolstering the Division's position in surfactants. The assimilation of TRITON surfactants into the same business unit as TERGITOL surfactants was accomplished while providing uninterrupted service to customers.

Design and engineering work got under way for the construction of a major new specialty surfactants plant at Union Carbide's South Charleston, W.Va., chemicals complex. The 50 million-pound-per-year plant represents another key step in the orderly transition of TRITON surfactants production from Rohm and Haas to Union Carbide. When the new plant is completed and operating, Carbide's production of TRITON surfactants, currently being carried out at Rohm and Haas's Philadelphia plant, will be gradually shifted to the facility.

The year 1991 was an excellent one as well for the Division's CARBOWAX polyethylene glycol business, which continued to grow. Despite the general business downturn, several new CARBOWAX products were successfully commercialized to meet a variety of customer needs in cosmetics, ceramics and biotechnology markets.

Sales of ethylene glycol-based heat-transfer fluids, as well as aircraft and runway deicing fluids, were up significantly for the year.

The Division also secured four more ISO 9002 registrations, making a total of five. The registration signifies that a quality assurance system at a registered facility meets guidelines set by the International Standards Organization. The Division's 800-mile-long ethylene pipeline system was the first in the world to achieve ISO registration.

Many of the same market conditions that constrained the Division's performance last year are expected to affect business in 1992. Nevertheless, the Division should begin to benefit from a recovering domestic economy, lower-priced raw materials and the restart of the Seadrift ethylene oxide unit.

Roger B. Staub, President

Commercial development of Union Carbide's leading-edge UNIPOL technology continued to drive the Polyolefins Division in 1991.

Several major development projects crystallized in 1991, led by the start-up of a new UNIPOL polyethylene plant serving North American markets and a number of new UNIPOL technology licensing projects. These developments, which will help boost the Division's performance in the years ahead, highlighted an otherwise recessionary period for commodity polyethylene resin sales.

Early in 1991, margins dropped due to sharp customer inventory adjustments following the Persian Gulf War. As the year progressed, performance was also affected by a dramatic increase in raw material prices.

UNIPOL technology's licensing success continued to grow as five new UNIPOL process plants began operating around the world in 1991. One of the plants, a polyethylene facility in Montreal, Canada, now serves the North American market for high density polyethylene. The facility is operated by Petromont and Company, Limited, Union Carbide's joint venture with LeGroupe SGF.

Four reactor lines came on stream during the year at UNIPOL polypropylene licensee plants owned by Epsilon Products, Texas Eastman Chemicals, and two operated by Royal Dutch Shell. These additions increased the number of UNIPOL polypropylene reactor lines operating around the world to nine.

In addition, UNIPOL polyolefins technology was selected for three polyethylene and one polypropylene facility by companies constructing new plants in the People's Republic of China, Ukraine and Russia, adding to the growing list of petrochemical producers worldwide who recognize the superiority of Union Carbide's polyolefins technology.

In other areas, the Division's development work in product technology produced encouraging results.

A new UNIVAL polyethylene homopolymer resin, used to produce water and milk bottles, was successfully introduced in 1991. At the same time, development work neared completion in an exciting new field — bimodal film resins. These polyethylenes produce tougher films at thinner gauges for a wide variety of packaging applications and are slated for commercial introduction in 1992.

The Division's growing family of very low density FLEXOMER resins, which effectively bridge the properties gap between traditional plastics and rubber, posted impressive sales gains throughout the year. Sales surged nearly 35 percent over 1990, led by gains in film and polymer modification applications. Fresh and frozen food packaging and high performance compounds for automotive applications top the list of key markets that the Division continues to penetrate.

Polyolefins opened the first full-scale, multiplastics recycling facility in the U.S. capable of recycling post-consumer polyethylene plastic film used for bags and wrapping; high density polyethylene used in milk, juice and water jugs and soap, detergent and cleaning agent bottles; and polyethylene terephthalate (PET) used in soda, liquor and salad dressing bottles. Located in Piscataway, N.J., the recycling facility can reclaim up to 4.5 million pounds of plastics monthly — the equivalent of two acres of compressed plastic bottles, stacked 10 feet high. One of the business's first major customers is Rubbermaid, Inc., which uses recycled polyethylene resin from the plant to produce 32-gallon, blow-molded trash containers. Other customers include producers of soap and detergent bottles, drainage pipes, refuse and recycling containers, garbage and merchandise bags, and fencing.

Although supplies of polyethylene to the wire and cable materials business were severely curtailed for several months by the explosion at Seadrift, Tex., customer disruption was minimal, and the Division's jacketing and insulation business suffered virtually no loss of market share. Domestic volume declined largely because of a dramatic slowdown in construction and housing starts in 1991. But at the same time, export volume grew significantly as developing nations continued to build their telephone and electrical power networks.

UNIGARD flame-retardant wire and cable insulating and jacketing compounds also performed well throughout the year. Sales jumped 30 percent above levels achieved in 1990. Wire and cable materials capacity got a boost from Union Carbide's new Semicon II plant, which became fully operational at Seadrift in 1991. The 60 million-pound-per-year facility produces semiconductive shielding compounds of unsurpassed cleanliness and smoothness that can improve cable performance and extend cable life.

Throughout the year, the Polyolefins Division stepped up efforts to improve operating efficiencies. The Star plant in Taft, La., for example, established new production records. At the same time, the Division cut costs by continuing to streamline manufacturing and distribution operations, and it fully expects to achieve even greater savings in 1992.

Solvents and Coatings Materials

Frederick J. Costello, President

Solvents and Coatings Materials maintained strong market momentum in 1991 through increased emphasis on cost control, technological innovation and greater attention to customer needs. Additionally, Solvents and Coatings Materials completed negotiations for the divestiture of several nonstrategic businesses during the year. In 1992, the Division fully expects to achieve even greater cost efficiencies as a result of ongoing work process improvements. These efforts have become more than just a way of doing business in Solvents and Coatings Materials — they have become a way of life.

Important technological enhancements were achieved, particularly in the development of Union Carbide's patented UNICARB System, which can reduce emissions generated by spray-applied coatings by up to 70 percent. The UNICARB System substitutes recycled carbon dioxide for hydrocarbon solvents, providing manufacturers with an environmentally superior alternative to conventional coatings systems. In 1991 commercial spray equipment was developed and successfully demonstrated on commercial coating lines within the automotive and wood finishing industries.

One of the largest U.S. producers of latex for trade paint, adhesives, caulks and sealants, the Division has a strong global position in the latex market, operating 14 latex plants worldwide, including seven in Asia. Two additional plants are scheduled for completion in Dubai and in Guangdong Province, People's Republic of China, in 1992.

New product introductions helped bolster the Division's position in specialty materials for the coatings market. One of the most promising of these introductions was VYNATE vinyl ester monomers, designed to enhance the performance of vinyl ester resin systems used in the production of coatings, adhesives, caulking compounds and sealants.

Coinciding with the introduction of VYNATE monomers, Union Carbide was named the exclusive U.S. reseller of Shell Chemical's VEOVA vinyl monomers. This arrangement will allow Union Carbide to offer a family of vinyl ester monomers that customers can formulate into new products with properties targeted for coatings, adhesives and architectural markets.

Technology licensing agreements continued to play an important role in Solvents and Coatings Materials Division performance. An agreement in principle was reached with SABIC, the Saudi Arabian chemical company, to license Union Carbide's low-pressure Oxo process. This represents the 15th company around the world to select the Division's technology for oxo alcohol production.

Several new programs were initiated by work process improvement teams to strengthen the Division's responsiveness to customers. A pilot program was implemented in which sample orders are shipped within eight working hours from time of receipt. A toll-free technical hotline for solvents-related inquiries was expanded from the U.S. to Canada. Now the Division is receiving more than 300 inquiries each month, with most callers being connected immediately to a technical expert.

A customer-satisfaction survey conducted during the year by an independent consulting firm confirms that Solvents and Coatings Materials' efforts are moving the Division in the right direction. Customers in the solvents and intermediate markets rank Union Carbide among the best in customer and technical service, product and market knowledge, and overall performance.

In 1992, the Division will continue its efforts to build on its customer satisfaction record by consolidating several customer-related activities in a service center in the Houston area. This is the beginning of many customer-focused work process improvements designed to ensure that Solvents and Coatings Materials maintains its position as a preferred supplier to the coatings industry.

Specialty Chemicals

Joseph C. Soviero, President

Specialty Chemicals Division turned in a strong performance in 1991, as demand from several growth markets — including areas where environmental performance is becoming a paramount concern — continued to increase.

New legislation requiring higher environmental standards for industry has been a stimulant to this demand. To capitalize on these new opportunities, Specialty Chemicals expanded its lineup of product and services offerings. For example, UOP, a joint venture between Union Carbide and Allied-Signal Inc., unveiled a new technology called the ETHERMAX process that will help American oil refiners meet stringent new standards for gasoline composition mandated by the recently amended Federal Clean Air Act.

UOP continues to develop new technology and improve existing processes, providing the refining industry with a complete array of advanced solutions to the challenge of producing reformulated gasoline and other environmentally cleaner fuels. UOP is in a strong competitive position in one of the largest growth areas in the U.S. refining industry. UOP's gas processing group is working with the Division's gas treating business to offer to customers a complete package of licensing and engineering services, as well as specialty solvents and technical support services for gas processing facilities, that is expected to enhance the global presence of both businesses as they bid on future projects.

The Division's gas treating business also introduced a new service program to provide refinery and natural gas customers with dedicated technical support to assist in operations of processes using Union Carbide gas treating solvents. This type of service program puts product/process expertise directly with customers to help them to operate more efficiently and to meet environmental standards.

In 1991, Amerchol, a wholly owned subsidiary, kept the spotlight on consumer environmental awareness with the expansion of a new line of naturally derived chemical products for the personal care industry based on corn sugar and water soluble polymers.

Meanwhile, Specialty Chemicals' performance was also strengthened by the divestiture of an underperforming area — the transformer retrofill service business of Unison Transformer Services, Inc.

Nineteen ninety-one was also a good year for Specialty Chemicals' OrganoSilicon Products, Systems and Services group of businesses (OSi). Worldwide sales growth, coming off a good year in 1990, remained satisfying throughout 1991. The group continued to roll out new products at a rapid pace. In the past two years, some 80 new products have been introduced by OSi, providing a solid foundation for continued growth. In 1991, newly commercialized products contributed a record percentage of total revenues.

Earlier this year, Union Carbide announced its intention to sell the OSi group of businesses as part of its plan to sell $500 million of nonstrategic assets over the next two years to reduce debt.

The acrolein derivatives business, serving the markets for animal feed supplements, biocides, carbonless paper and leather tanning, grew more than 20 percent over last year's levels.

Opportunities for growth in the biocide market were enhanced through an agreement with a company in the People's Republic of China. Recent government approvals in Canada and Australia have also enabled the biocides business to promote products in those countries.

The Division's Parylene conformal coatings, used in heart pacemakers for many years, continued to find a number of new uses in the growing medical devices market. Parylene polymer is now being used as a protective coating for catheters, needles, medical probes and other implantable devices.

New and exciting applications like these, combined with vigorous marketing efforts and cooperative agreements, make Specialty Chemicals an area of promise and potential.

Union Carbide Industrial Gases Inc. (UCIG) separates air into its components for industrial and medical uses. It is the largest producer of industrial gases in the Western Hemisphere and one of the three largest in the world.

UCIG's main products are oxygen, nitrogen, argon, acetylene, hydrogen, helium, specialty gases, membrane systems, industrial gas plants and equipment. Gases are sold from on-site plants, through pipelines, in bulk liquid or gaseous form and in cylinders.

The leading UCIG end markets as a percentage of sales are metal fabrication, primary metals, chemicals, medical, electronics, food, aerospace and oil and gas.

UCIG's coatings service business supplies wear-resistant and high temperature corrosion-resistant coatings to a wide range of industrial customers.

In December 1991, Union Carbide announced its intention to spin off the Industrial Gases business to shareholders by the end of the second quarter of 1992. As a result, UCIG's financial data is presented as a discontinued operation.

As a stand-alone company, UCIG reported 1991 sales of $2.469 billion, up two percent from $2.420 billion in 1990.

Operating profit decreased 21 percent to $324 million from the $409 million recorded in 1990, primarily a result of lower operating profit in Brazil and the effects of $11 million of special charges related to the profit improvement program.

UCIG's net income for the full year totalled $107 million, including a $7 million after-tax special charge associated with the profit improvement program. Net income for full year 1990 was $120 million, including a $15 million gain from divested businesses.

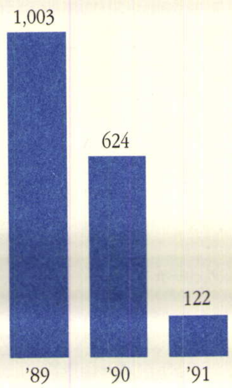
Management's Discussion and Analysis

Union Carbide Corporation has operated through two industry segments, Chemicals & Plastics and Industrial Gases. In December 1991, the Corporation's Board of Directors approved a plan to spin off the Industrial Gases business to shareholders as a free-standing company. The spin-off is anticipated to be completed by the end of the second quarter of 1992 after receipt of an Internal Revenue Service ruling or acceptable opinion of counsel that the transaction will be tax-free. All financial data presented herein and elsewhere in this report have been restated to present Industrial Gases as a discontinued business. Continuing operations include revenues and expenses of Chemicals & Plastics operations, as well as general expenses (income)—net associated with corporate staff, financing and noncore business activities.

Continuing Operations

NET SALES
(Millions of Dollars)

OPERATING PROFIT
(Millions of Dollars)



CAPITAL EXPENDITURES
(Millions of Dollars)

DEPRECIATION AND AMORTIZATION
(Millions of Dollars)

Results of Operations

Summary and Outlook

Dollar amounts in millions (except per share figures)	**1991**	1990	1989
Net sales	**$4,877**	$5,238	$5,613
Operating profit	**122**	624	1,003
General expenses (income)—net	**41**	(10)	(45)
Interest expense	**228**	269	268
Pre-tax income (loss) from continuing operations	**(147)[a]**	365	780
Income (loss) from continuing operations	**(116)[a]**	188[b]	530
Income from discontinued operations	**107[a]**	120[c]	43[d]
Net income (loss)—common stockholders	**(28)[a]**	308	573
Per share, fully diluted: Continuing operations	**(1.06)[a]**	1.34[b]	3.63
Discontinued operations	**0.84[a]**	0.79[c]	0.29[d]
Total	**(0.22)**	2.13	3.92

a) Includes special charges as follows:

	Before Tax			
	Operating Profit	General Expenses—Net	Total	After Tax
Severance and relocation costs	$ 61	$ 57	$118	$ 80
Joint venture charges	60	—	60	61
Legal and other	9	22	31	19
	$130	$ 79	$209	$ 160

In addition, the after-tax special charge for discontinued operations was $7 million.

b) Includes a charge of $86 million, or $0.61 per common share primary ($0.56 per common share fully diluted), from the sale of a 50 percent interest in the carbon products business (see Note 4 on page 33), largely offset by gains aggregating $70 million, or $0.50 per common share primary ($0.46 per common share fully diluted), from the sale of the primary alcohol ethoxylates and polysilicon businesses and Union Carbide's 50 percent interest in KEMET Electronics Corporation.

c) Includes a gain of $10 million, or $0.07 per common share primary ($0.06 per common share fully diluted), from the sale of a 50 percent interest in Lincare Inc.

d) Includes a charge of $45 million, or $0.32 per common share primary ($0.30 per common share fully diluted), representing facility shutdown costs and severance and relocation benefits associated with restructuring the Linde USA and U.S. packaged gas businesses of Union Carbide Industrial Gases.

The Corporation reported an after-tax loss from continuing operations of $116 million, as compared to earnings from continuing operations of $188 million and $530 million in 1990 and 1989, respectively. Deteriorating general economic conditions caused selling prices for major chemical product lines to fall throughout most of the year. Poor demand and industry overcapacity limited the businesses' ability to raise prices sufficiently to offset rapidly increasing feedstock costs. Significant decreases in administrative and other overhead expenses only partially offset the margin deterioration. Operating results were also adversely impacted by estimated lost pre-tax profits of $96 million as a result of an explosion at the Corporation's Seadrift, Tex., facility in March 1991, as well as the special charge of $209 million before-tax ($160 million after-tax). Additionally, Chemicals & Plastics operating profit was reduced by $35 million in connection with the sale and wind-down of the transformer retrofill service business of the Unison Transformer Services subsidiary.

A number of significant actions were undertaken during the year to improve the Corporation's financial and business performance and deliver enhanced value to shareholders. These included:

- Approval in December 1991 of a plan to spin off the Industrial Gases business to shareholders as a free-standing company.
- Announcement in December 1991 of the intention to sell about $500 million of assets by the end of 1993 to better focus the Chemicals & Plastics business portfolio and streamline core businesses, and to reduce the Corporation's debt ratio. As part of the program, the Corporation announced on Jan. 23, 1992, its intention to sell the worldwide OrganoSilicon Products, Systems and Services group of businesses.
- Intensified permanent work process and other efficiency improvement efforts in order to double previously announced cost reduction goals to $400 million a year by the end of 1994. The cost reduction goal results from the Corporation's announced program to aggressively review all operations and work processes with the objective of becoming the low-cost preferred supplier of the Corporation's principal petrochemical product lines. Major programs have been implemented with the assistance of outside consultants to improve plant maintenance through better planning, reduced paperwork and simplified work processes, to consolidate distribution and customer service functions, to reduce inventories through better sales forecasting and management, to reduce functional support staffs, to improve intraplant logistics and, generally, to reduce layers of management in the organization. Corporate level staff reductions and consolidation of headquarters operations are also planned. Mainly as a result of the above profit improvement plan, the Corporation recorded special charges for continuing operations of $209 million ($160 million after-tax).
- Strong actions to adjust to adverse business conditions and reduced profit performance, including constrained capital spending, a salary freeze for senior corporate officers and sharply reduced variable compensation for middle and senior management.
- Completion of the sale, announced in November 1990, of a 50 percent interest in UCAR Carbon, resulting in pre-tax proceeds and collection of a receivable totaling $438 million.
- Acquisition of the minority interest in Union Carbide Canada Limited, consistent with realigning Union Carbide businesses on a worldwide basis.

Dollar amounts in millions	**1991**	1990	1989
Number of employees (year-end)	**16,705**	17,722	18,032
Employment costs (wages, benefits, payroll taxes)	**$ 990**	$1,015	$ 991

The operating environment in 1992 will continue to be challenging. Overexpansion of industry capacity will likely keep margins at unsatisfactory levels, especially until domestic and overseas economies recover. Feedstock and energy costs have declined in the early months of 1992, providing a measure of relief from the pressure on margins during the fourth quarter of 1991. However, significant near-term improvement in operating results is most likely to come from continued emphasis on cost reduction through work process changes and other efficiency improvements. Overall financial results should show some improvement in 1992. Over the longer term, the Corporation's future operations are likely to be more cyclical than results experienced when the Industrial Gases business was included in consolidated operations. However, actions undertaken in recent years to renew manufacturing facilities and technologies, improve the quality of the business portfolio and control costs should mitigate the effects of the business cycle.

Chemicals & Plastics Operations

1991 Compared with 1990

Sales of $4.877 billion decreased seven percent from 1990. Overall selling prices for 1991 were lower than in the prior year. Although the current year was adversely affected by sharply lower average prices for polyethylene, prices started to firm late in the year. Weak pricing for polyethylene was partially offset by increased polyester glycol volumes. Export sales from domestic operations increased to $568 million in 1991, three percent above 1990, mainly as a result of polyester glycol demand.

Percent change from prior year (domestic operations)	**1991**	1990	1989
Sales	**– 8**	– 9	– 1
Average selling prices	**– 5**	– 11	0
Volume	**– 3**	+ 2	– 1

Operating profit decreased 80 percent, to $122 million, as compared with 1990. The special charge, Seadrift explosion, and sale and wind-down of the Unison business reduced operating results in 1991 by a total of $261 million. Excluding these items, operating profit decreased 39 percent. The gross margin ratio declined throughout the year, averaging 22.4 percent in 1991 as compared to 26.0 percent in 1990. Lower selling prices, increased hydrocarbons feedstock costs, and the $96 million loss of margin due to the Seadrift plant explosion contributed to the decreasing gross margin. Higher-than-anticipated maintenance and turnaround costs of a Texas City olefins unit late in 1991 also lowered the gross margin. Selling, administrative and other expenses associated with the Chemicals & Plastics business decreased by 11 percent, mainly as a result of lower contributions to profit sharing and cost reduction efforts. Operating profit for the Chemicals & Plastics business was reduced by $130 million, representing severance and relocation costs, the Corporation's $60 million share of UOP's write-down to net realizable value of certain assets applicable to its fluid cracking catalyst business, and certain other provisions mainly associated with the Corporation's profit improvement program, and by $35 million from the sale and wind-down of the transformer retrofill service business of the Unison Transformer Services subsidiary. Income from joint venture partnerships (excluding the above UOP charge) decreased to $38 million, from $70 million in 1990, as a result of losses from Petromont and Company, Limited, our Canadian petrochemical partnership. The Petromont loss reflected the recessionary economy in that country as well as restructuring costs for actions that will benefit future profitability.

1990 Compared with 1989

Sales of $5.238 billion decreased seven percent from the record level of 1989. Although prices of ethylene oxide/glycol, polyethylene and other ethylene derivatives were raised late in the year in response to higher feedstock and energy costs, overall average selling prices for the full year of 1990 were lower than in the prior year for most major products. Increased volumes, primarily ethylene oxide/glycol and polyethylene, partially offset the weak pricing environment, and revenues also benefited from increased UNIPOL licensing activity.

Operating profit decreased 38 percent, to $624 million, as compared with 1989. Increased hydrocarbon feedstock and energy costs, costs associated with a severe freeze on the Gulf Coast earlier in 1990 and declines in selling prices contributed to a decreasing gross margin trend throughout the year. The 1990 gross margin ratio declined to 26.0 percent from 30.3 percent in 1989. Research and development expenditures increased by 10 percent to $157 million, representing continued development of process technologies, product line expansion and new business development efforts. Selling, administrative and other expenses associated with the Chemicals & Plastics business increased by six percent, mainly as a result of unfavorable currency movements. Domestic selling, administrative and other expenses decreased slightly. Chemicals & Plastics operating profit includes gains aggregating $55 million from the sale of the primary alcohol ethoxylates and polysilicon businesses. Income from joint venture partnerships decreased to $70 million in 1990 from $82 million in 1989. Substantially improved results from UOP were more than offset by decreased earnings from Petromont and Company, Limited.

1989 Compared with 1988

Sales in 1989 of $5.613 billion increased two percent over 1988 to a record, principally reflecting continued strong pricing for most product lines other than polyethylene and strong volumes for all major product lines throughout the first half of 1989.

Operating profit in 1989 decreased 17 percent, to $1.003 billion, as compared with the record levels achieved in 1988. The 1989 gross margin ratio declined to 30.3 percent from 32.9 percent in 1988. Research and development activities were expanded during the year, resulting in a 15 percent increase in expenditures, to $143 million. Selling, administrative and other expenses associated with the Chemicals & Plastics business increased by 15 percent, reflecting support for increased new business development activities. Income from joint venture partnerships decreased to $82 million in 1989 from $95 million in 1988. Improved results from UOP were more than offset by reduced results from Petromont and Company, Limited.

General Expenses (Income)—Net

General expenses (income)—net includes unallocated corporate staff costs, the cost of accounts receivable discounting and other noninterest financing charges, foreign currency and interest rate hedging, corporate legal expenses, contributions, corporate realignment and reorganization costs and certain interest income including interest income from Industrial Gases business debt owed to UCC, as well as losses related to noncore businesses. The

Corporation's principal noncore businesses include domestic mining and milling of uranium and vanadium through Umetco Minerals Corporation and the mining and smelting of chrome by unconsolidated subsidiaries in Zimbabwe. In 1991, general expenses (income)—net also includes $79 million of before-tax special charges representing staff severance, headquarters consolidation, legal and spin-off costs. Following is an analysis of general expenses (income)—net:

	Expenses (Income)		
	1991	1990	1989
Interest income from discontinued business	**$(90)**	$(108)	$(104)
Financing (income) expense	**(27)**	11	(5)
Special charge	**79**	—	—
Corporate staff	**39**	41	40
Noncore businesses	**23**	16	7
Litigation	**8**	9	20
Realignment and corporate reorganization	**2**	17	6
Other	**7**	4	(9)
	$ 41	$ (10)	$ (45)

Costs Relating to Protection of the Environment

Worldwide costs relating to environmental protection continue to grow, due primarily to increasingly stringent laws and regulations and to the Corporation's commitment to rigorous internal standards. In 1991, worldwide expenses of continuing operations related to environmental protection, including expenditures and accruals for compliance with Federal, state and local laws regulating solid and hazardous wastes and discharge of materials to air and water, as well as for waste site remedial activities, totaled $184 million. Expenses in 1990 and 1989 totaled $158 million and $153 million, respectively. In addition, worldwide capital expenditures relating to environmental protection in 1991 aggregated $65 million compared with $61 million and $39 million in 1990 and 1989, respectively. Environmental expenses related to the Industrial Gases business totaled $15 million in 1991 and $12 million in 1990.

The Corporation, like other companies in the U.S., periodically receives notices from the U.S. Environmental Protection Agency and from state environmental agencies, as well as claims from other companies, alleging that the Corporation is a "potentially responsible party" (PRP) under the Comprehensive Environmental Response, Compensation and Liability Act and equivalent state laws (hereafter referred to collectively as "Superfund") for past and future cleanup costs at hazardous waste sites. The Corporation is a PRP at 48 Superfund sites where management believes that it is probable that the Corporation will incur cleanup costs. Environmental investigatory and remediation projects are also being undertaken at waste sites located on property presently as well as formerly owned by the Corporation. The Corporation has established accruals for those sites where it is probable that a loss will be incurred and the amount of the loss can be reasonably estimated. The Corporation adjusts accruals as new remediation commitments are made, as information becomes available permitting reasonable estimates to be made and to reflect new and changing facts.

At approximately 45 hazardous waste sites, the Corporation is contesting its alleged liability (including sites at which the Corporation has asserted that it is not a PRP, or is contesting the Corporation's allocation of responsibility, or is contesting the proposed remedy) for cleanup costs asserted by the U.S. Environmental Protection Agency. The Corporation anticipates that its ultimate liability in the aggregate at those sites will not have a material adverse effect on the consolidated financial position of the Corporation, but could have a material effect on the consolidated results of operations in a given year (see Note 22 on page 43).

Estimates of future costs of environmental protection are necessarily imprecise due to numerous uncertainties, including the impact of new laws and regulations, the availability and application of new and diverse technologies, the identification of new hazardous waste sites at which the Corporation may be a PRP and, in the case of Superfund sites, the ultimate allocation of costs among PRP's and the final determination of the remedial requirements. Subject to the inherent imprecision in estimating such future costs, but taking into consideration the Corporation's experience to date regarding environmental matters of a similar nature and facts currently known, the Corporation estimates that worldwide expenses for environmental protection, expressed in 1991 dollars, should average about $160 million annually over the next five years. Worldwide capital expenditures for environmental protection, also expressed in 1991 dollars, are expected to average about $95 million annually over the same period. Management anticipates that future annual costs for environmental protection after 1996 will continue at comparable levels to the five-year average estimates.

Subject to the inherent imprecision and uncertainties in estimating and predicting future costs of environmental protection, it is management's opinion that any future annual costs for environmental protection in excess of the five-year average estimates stated herein, plus those costs anticipated to continue thereafter, would not have a material adverse effect on the Corporation's financial condition. However, such excess, if any, could have a material adverse effect on results of operations for a given year.

Interest Expense

Interest expense totaled $228 million in 1991, a decrease of $41 million compared with 1990, reflecting reduced debt and interest rates. Interest expense totaled $269 million in 1990, essentially unchanged from the prior year.

Provision for Income Taxes

The Corporation reported a credit for income taxes of $50 million for 1991, representing 34.0 percent of the pre-tax loss in the period. The tax rates for 1990 and 1989 were relatively stable, at 35.6 percent and 32.9 percent, respectively. The tax rate in 1989 was lower than the rate of 39.0 percent in 1988, reflecting increased Foreign Sales Corporation earnings as a proportion of total pre-tax income and reversals of deferred tax credits established at higher rates in prior years.

Statement of Financial Accounting Standards No. 109, Accounting for Income Taxes, will modify the accounting for income taxes (see Note 11 on page 36).

Minority Interest and Net Income (Loss) from Investments Carried at Equity

Minority stockholders' share of loss in 1991 was $2 million, compared with $5 million of income in 1990. The loss was primarily a result of losses from Union Carbide Canada Limited occurring prior to the acquisition of the minority interest by Union Carbide Corporation. Minority share of income was $20 million in 1989. The decrease in 1990 was principally a result of the redemption of $249 million of preferred stock of Union Carbide Finance Corporation in the second quarter of 1990 and lower earnings from the former minority interest in Union Carbide Canada Limited.

Investments carried at equity for the year ended Dec. 31, 1991, include the Corporation's 50 percent share of UCAR Carbon; Nippon Unicar Company Limited, which is a 50 percent-owned Chemicals & Plastics corporate investment in Japan, as well as several smaller corporate investments. In 1991, the Corporation's share of losses of investments carried at equity totaled $21 million, principally resulting from losses of UCAR Carbon, including a $10 million after-tax charge (included in the previously identified special charge) representing UCC's share of losses related to restructuring of certain carbon production facilities. In 1990, the Corporation's share of losses from investments carried at equity totaled $42 million. This amount includes a nonrecurring net charge of $55 million, consisting of a loss of $86 million from the sale of a 50 percent interest in UCAR Carbon, partially offset by a gain of $31 million from the sale of the Corporation's interest in KEMET Electronics Corporation. In addition, lower income was recorded from Nippon Unicar Company Limited. At $27 million, the Corporation's share of income of corporate investments carried at equity in 1989 was lower than the $33 million of 1988, mainly due to lower income from KEMET Electronics Corporation.

Income from Discontinued Operations

Income from discontinued operations reflects the net income of the Industrial Gases business as a result of the plan to spin off this business to shareholders as a free-standing company. Sales of Industrial Gases in 1991 were $2,469 million, a two percent increase compared with prior year sales of $2,420 million. Sales in 1989 were $2,073 million. Operating profit decreased 21 percent to $324 million in 1991 from the $409 million recorded in 1990, primarily a result of lower operating profit in Brazil and the effects of $11 million of special charges related to a profit improvement program. Net income in 1991 was $107 million, down 11 percent from the 1990 amount of $120 million. Net income for 1990 was nearly three times the $43 million reported in 1989. Excluding a $45 million 1989 restructuring charge, 1990 net income would have been up 36 percent. Results in 1990 included a $15 million gain from divested businesses.

Accounting Standards No. 106— Employers' Accounting for Postretirement Benefits Other Than Pensions

Statement of Financial Accounting Standards No. 106, Employers' Accounting for Postretirement Benefits Other Than Pensions, effective for years beginning after Dec. 15, 1992, will significantly change the accounting for retiree benefits other than pensions. The standard requires employers to account for retiree benefit obligations (principally health care) on an accrual basis, rather than on the current basis of "pay-as-you-go." When UCC adopts the standard in 1993, it is expected to have an adverse effect on future reported earnings and net equity. It will not affect the Corporation's cash flows because payments may continue on a "pay-as-you-go" basis (see Note 20 on page 41).

Liquidity, Capital Resources and Other Financial Data

Impact of the Industrial Gases Spin-Off

The spin-off of the Industrial Gases business is anticipated to be completed by the end of the second quarter of 1992 after receipt of an Internal Revenue Service ruling or acceptable opinion of counsel that the transaction will be tax-free. Immediately following the spin-off, Union Carbide shareholders will have shares in two autonomous free-standing companies—one constituting the former Industrial Gases business of Union Carbide and the other composed of Union Carbide's continuing operations, principally in the chemicals and plastics business. Following is a summary of the significant financial impacts of the spin-off on Union Carbide's continuing businesses:

- The receivable from Industrial Gases, which aggregated $1.038 billion at Dec. 31, 1991, is expected to be repaid by Industrial Gases using proceeds from borrowings to be incurred by Industrial Gases from third-party lenders.
- Proceeds from the Industrial Gases payment will be used by Union Carbide to reduce its outstanding debt.
- Union Carbide stockholder's equity will be reduced by the net assets of the Industrial Gases business on the date of the spin-off. At Dec. 31, 1991, net assets of the Industrial Gases business totaled $650 million.
- After the spin-off, cash flow of the Industrial Gases business will no longer be available to Union Carbide. Similarly, Union Carbide cash flow will no longer be available to Industrial Gases. In 1991 and 1990, Union Carbide transferred $7 million and $5 million, respectively, to Industrial Gases. In 1989, Industrial Gases transferred $3 million to Union Carbide.

Cash Flow from Continuing Operations

Cash flow from operations increased to $481 million in 1991 from $427 million in 1990. Lower net income in 1991 (adjusted for noncash charges) was more than offset by lower customer receivables and collection of a note from Public Service of Indiana of $94 million. Cash flow from operations in 1989 included the $256 million cash payout, net of insurance proceeds, associated with the settlement of the Bhopal litigation.

Cash Flow from (Used for) Investing

Cash flow from (used for) investing includes capital expenditures, investments, and proceeds from the sale of assets and businesses, and net cash transferred to Union Carbide Industrial Gases Inc. Capital expenditures for 1991 totaled $400 million as compared to $381 million in 1990. Major domestic capital projects in 1991 included rebuilding of the Seadrift ethylene oxide unit and continued expenditures for the conversion of a plant at Taft, La., to an oxygen process and continuous catalyst facility. Approximately 85 percent of capital spending for the last three years was in the U.S. and Puerto Rico. Of expenditures over the last three years, approximately 35 percent were directed to new capacity, 42 percent to cost reduction and replacement, and 23 percent to environmental, safety and health facilities.

During 1990, total investments of $204 million included the purchase of the TRITON surfactant and alkylphenol business. Proceeds from sales of assets in 1991 included receipt of $233 million from Mitsubishi Corporation in connection with the sale of 50 percent of the Corporation's equity in UCAR Carbon Company, Inc., and collection of $205 million on a note from UCAR Carbon. In 1990, proceeds from the sale of businesses included the sale of the polysilicon business, the primary alcohol ethoxylates business, and Union Carbide's 50 percent interest in KEMET Electronics Corporation. Sale of the urethane polyols and propylene glycol business was included in 1989 proceeds.

At Dec. 31, 1991, the cost of completing authorized construction projects was estimated to be $260 million, of which $14 million is covered by firm commitments.

Cash Flow Used for Financing

Cash flow used for financing includes UCC and minority stockholder dividends and funds used to buy back common stock and debt changes, offset in part by proceeds from sales of common stock pursuant to the Corporation's dividend reinvestment and employee savings and incentive programs. Cash flow used for financing increased to $569 million from $167 million in 1990, primarily as a result of increased net debt paydowns. Net debt reductions, exclusive of foreign currency effects, aggregated $432 million in the current year as contrasted to net debt borrowings of $506 million in 1990. Proceeds from 1990 borrowings were used to fund a 20.3 million-share common stock repurchase in the fourth quarter of 1990, in addition to the redemption of $249 million-Asset Backed Short-Term Auction Rate Preferred Stock (STAR Preferred). The Corporation's ratio of debt to capital was 52 percent at Dec. 31, 1991, versus 54 percent at Dec. 31, 1990. Net debt paydowns totaled $38 million in 1989.

In September 1990, the Corporation's Board of Directors authorized an Employee Stock Ownership Plan (ESOP). This Plan was effective Jan. 1, 1991. In the fourth quarter of 1990, the ESOP borrowed $325 million from Union Carbide Chemicals and Plastics Company Inc. ("UCC&P Inc.") and utilized the cash to acquire 15.1 million shares of a new series of convertible preferred stock from the Corporation. The receivable was later assigned to the Corporation.

At Dec. 31, 1991, Union Carbide had approximately $1.1 billion of unused borrowing capability under existing major bank credit agreements.

Certain consolidated domestic and international subsidiaries are restricted by borrowing arrangements, regulatory restraints, or the laws of national and local governments as to their ability to transfer funds to the parent in the form of cash dividends, loans or advances. At Dec. 31, 1991, the amount of such restricted net assets was $40 million. In addition, there are similar restrictions on our unconsolidated subsidiaries of $52 million.

The Corporation has guaranteed the payment of principal; premium, if any; and interest on all public debt of UCC&P Inc. Under certain of the instruments relating to such debt, UCC&P Inc. is restricted from paying cash dividends to UCC if its total equity less intangible assets is less than $450 million. Total equity less intangible assets was approximately $2 billion at Dec. 31, 1991. UCC&P Inc. is also restricted from making such payments if it is in default under these debt instruments.

Capital

Capital employed represents total assets less noninterest-bearing obligations. It is provided by creditors and shareholders, and is equivalent to the sum of total debt, minority interest and stockholders' equity.

Following is an analysis of UCC's capital for the past three years:

Millions of dollars	**1991**	1990	1989
Chemicals & Plastics	**$3,038**	$3,102	$2,877
Due from Industrial Gases	**1,038**	989	1,224
Net assets of discontinued business	**650**	645	527
Other	**(32)**	602	691
Total UCC consolidated	**$4,694**	$5,338	$5,319

In connection with the proposed Industrial Gases spin-off, the receivable from Industrial Gases will be paid. Proceeds from such repayment will be used by Union Carbide to reduce its outstanding debt, and Net assets of discontinued business will be eliminated. Other capital includes miscellaneous receivables and payables as well as investments in noncore businesses. In recent years, the Corporation has initiated a number of actions to minimize the amount of capital invested in other than core operations. It is anticipated that following completion of the Industrial Gases spin-off, substantially all capital will be invested in Chemicals & Plastics operations.

Debt Ratios

Total debt outstanding at year-end for the past three years was:

Dollar amounts in millions	**1991**	1990	1989
Domestic	**$1,962**	$2,300	$1,929
International	**480**	583	728
Total	**$2,442**	$2,883	$2,657

Year-end ratios of total debt to total capital were:

	1991	1990	1989
Debt ratio	**52.0%**	54.0%	49.9%

Total debt includes short-term debt, long-term debt and the current portion of long-term debt; total capital consists of total debt plus minority stockholders' equity in consolidated subsidiaries and UCC stockholders' equity.

Analysis of Change in Earnings per Common Share

Dollars per common share	'91 vs. '90	'90 vs. '89
Primary earnings per common share, 1990 and 1989	**$ 2.19**	$ 4.07
Total gross margin	**- 1.18**	- 1.61
Research and development	**—**	- 0.06
Selling, administrative and other expenses	**+ 0.26**	- 0.12
Depreciation and amortization	**- 0.04**	- 0.08
Interest on long-term and short-term debt	**+ 0.18**	- 0.01
Other expense (income)	**- 1.56**	- 0.08
Effective income tax rate	**- 0.02**	- 0.07
Minority stockholders' share of income (loss)	**+ 0.05**	+ 0.10
UCC share of net income (loss) from corporate investments carried at equity	**+ 0.15**	- 0.49
Preferred stock dividend, net of taxes	**- 0.13**	—
Discontinued operations	**- 0.10**	+ 0.54
Decrease in shares outstanding	**- 0.02**	—
Net change	**- 2.41**	- 1.88
Primary earnings (loss) per common share, 1991 and 1990	**$ (0.22)**	$ 2.19

Union Carbide buys liquefied petroleum gas and naphtha and makes ethylene and propylene. The ethylene and propylene, both manufactured and purchased, are used to make the following products: polyethylene for pipe, electrical insulation, wrap, bags, bottles and other products; ethylene oxide/glycol and derivatives for antifreeze, polyester fiber, polyester film, petroleum processing, coatings, lubricants, cosmetics, surfactants and other uses; and alcohols for coatings, pharmaceuticals, preservatives, detergents and cosmetics. The Corporation makes and buys other materials to produce acrylates and acetic esters for coatings, latexes, packaging and other products. From manufactured or purchased chemicals, Union Carbide produces the following specialty chemicals: specialty glycol ethers, alkyl alkanolamines, acrolein, ethylidene norbornene and polyvinyl acetate. These specialty chemicals are used in the cosmetics, microbiocides, electronics, automotive, aerospace, oil and gas and industrial lubricant industries, and as chemical intermediates for pharmaceuticals and agricultural chemicals. Silicones are used in the manufacture of lubricants, electronics, pharmaceuticals, glass fiber and personal care products. Union Carbide's products are sold directly by its own sales force and through distributors worldwide, and are shipped by rail, barge, ship, pipeline and truck.

Geographic Segment Data

(Millions of dollars)

Sales	1991	1990*	1989*
United States & Puerto Rico	**$3,530**	$3,827	$4,191
Canada	**158**	192	231
Europe	**550**	594	588
Latin America	**200**	187	178
Far East & Other	**439**	438	425
International operations	**1,347**	1,411	1,422
Total UCC Consolidated	**$4,877**	$5,238	$5,613
Operating profit (loss)	**1991**	1990*	1989*
United States & Puerto Rico	**$ 89**	$ 556	$ 873
Canada	**(22)**	19	79
Europe	**4**	14	21
Latin America	**13**	10	12
Far East & Other	**27**	24	19
International operations	**22**	67	131
Inter-segment eliminations	**11**	1	(1)
Total UCC Consolidated	**$ 122**	$ 624	$1,003
Identifiable assets	**1991**	1990*	1989*
United States & Puerto Rico	**$3,712**	$3,826	$4,013
Canada	**361**	508	465
Europe	**351**	347	369
Latin America	**140**	132	130
Far East & Other	**317**	274	242
International operations	**1,169**	1,261	1,206
Inter-segment eliminations	**(120)**	(99)	(587)
Total UCC Consolidated	**$4,761**	$4,988	$4,632

*Restated (see Note 3 on page 32).

Notes to Geographic Segment Data

The following table reconciles operating profit with the consolidated financial statements. (The term *operating profit* is used as defined in Statement of Financial Accounting Standards No. 14.)

Millions of dollars	**1991**	1990	1989
Operating profit	**$ 122**	$ 624	$1,003
Less: General expense (income)—net	**41**	(10)	(45)
Interest on long-term and short-term debt	**228**	269	268
Income (loss) before provision for income taxes—continuing operations	**$ (147)**	$ 365	$ 780

The following table reconciles identifiable assets with the consolidated financial statements:

Millions of dollars	**1991**	1990	1989
Identifiable assets	**$4,761**	$4,988	$4,632
Investments and advances	**271**	310	551
Corporate assets	**106**	110	157
Due from Industrial Gases	**1,038**	989	1,224
Net assets of discontinued business	**650**	645	527
Due from UCAR Carbon	**—**	226	264
Other assets held for sale	**—**	121	—
Total UCC Consolidated	**$6,826**	$7,389	$7,355

Operating profit in 1991 includes the Corporation's share of loss before income taxes of $22 million from partnership joint ventures carried at equity. In 1990 and 1989, operating profit included income of $70 million and $82 million, respectively.

The Corporation's most significant partnerships include UOP, Petromont and Company, Limited (a limited partnership interest of a Canadian subsidiary) and a Carbide/Shell polypropylene partnership.

The 1991 operating profit of the United States & Puerto Rico segment includes special items aggregating $165 million relating to special charges and the sale and wind-down of the transformer retrofill service business of the Unison Transformer Services subsidiary.

The 1990 operating profit of the United States & Puerto Rico segment includes gains of $31 million from the sale of the primary alcohol ethoxylates business and $24 million from the sale of the polysilicon business.

The 1989 operating profit of the United States & Puerto Rico segment includes a gain of $101 million from the sale of the worldwide urethane polyols and propylene glycols businesses and a charge of $90 million resulting from a write-down to net realizable value of the polysilicon business.

Quarterly Data

Millions of dollars	1Q[a]	2Q[a]	3Q[a]	4Q	Year
1991					
Net sales	$1,323	$1,212	$1,191	$1,151	$4,877
Cost of sales	966	913	934	957	3,770
Depreciation and amortization	75	70	71	71	287
Income (loss) from continuing operations	56	22	(107)[b]	(87)[d]	(116)
Net income (loss)—common stockholders	78	46	(89)[c]	(63)[d]	(28)
1990					
Net sales	$1,279	$1,275	$1,336	$1,348	$5,238
Cost of sales	927	942	991	1,012	3,872
Depreciation and amortization	65	70	74	69	278
Income (loss) from continuing operations	67	87[e]	62[f]	(28)[g]	188
Net income—common stockholders	94	116[e]	91[f]	7[g]	308

Dollars per common share	1Q	2Q	3Q	4Q	Year
1991					
Primary income (loss) from continuing operations	$ 0.40	$ 0.13	$ (0.88)[b]	$ (0.72)[d]	$ (1.06)
Primary net income (loss)	0.62	0.36	(0.70)[c]	(0.49)[d]	(0.22)
Fully diluted income (loss) from continuing operations	0.40	0.15	(0.88)[b]	(0.72)[d,h]	(1.06)[h]
Fully diluted net income (loss)	0.54	0.35	(0.70)[c]	(0.49)[d,h]	(0.22)[h]
Dividends	0.25	0.25	0.25	0.25	1.00
Market price—high[i]	20.63	21.50	22.63	21.00	22.63
Market price—low[i]	15.13	16.63	19.63	16.38	15.13
1990					
Primary income (loss) from continuing operations	$ 0.47	$ 0.61[e]	$ 0.43[f]	$ (0.21)[g]	$ 1.34
Primary net income	0.66	0.81[e]	0.63[f]	0.05[g]	2.19
Fully diluted income (loss) from continuing operations	0.47	0.60[e]	0.43[f]	(0.20)[g]	1.34
Fully diluted net income	0.65	0.79[e]	0.62[f]	0.05[g,h]	2.13
Dividends	0.25	0.25	0.25	0.25	1.00
Market price—high[i]	24.88	22.50	20.63	18.13	24.88
Market price—low[i]	20.13	18.63	14.13	14.38	14.13

a) Restated (see Note 3 on page 32).

b) Includes an after-tax special charge of $114 million, or $0.89 per common share primary (see Note 6 on page 34).

c) Includes an after-tax special charge of $121 million, or $0.95 per common share primary (see Note 6 on page 34).

d) Includes an after-tax special charge of $46 million, or $0.36 per common share primary (see Note 6 on page 34).

e) Includes an after-tax gain of $19 million, or $0.13 per common share primary ($0.12 per common share fully diluted), from the sale of the primary alcohol ethoxylates business.

f) Includes an after-tax gain of $20 million, or $0.14 per common share primary ($0.13 per common share fully diluted), from the sale of the polysilicon business.

g) Income (loss) from continuing operations includes an after-tax charge of $86 million, or $0.64 per common share primary ($0.60 per common share fully diluted), from the sale of a 50 percent interest in the carbon products business and an after-tax gain of $31 million, or $0.23 per common share primary ($0.22 per common share fully diluted), from the sale of the Corporation's 50 percent interest in KEMET Electronics Corporation. Net Income (loss) — common stockholders includes the foregoing, plus an additional after-tax gain of $10 million, or $0.07 per common share primary ($0.06 per common share fully diluted), from the sale of the Corporation's 50 percent interest in Lincare Inc.

h) The fully diluted per common share amount is antidilutive and, accordingly, primary and fully diluted per common share amounts are identical.

i) Prices are based on New York Stock Exchange composite transactions.

Selected Financial Data

Union Carbide Corporation and Subsidiaries

Dollar amounts in millions (except per share figures)	1991	1990[a]	1989[a]	1988[a]	1987[a]
From the Income Statement					
Net sales	**$ 4,877**	$ 5,238	$ 5,613	$ 5,525	$ 4,423
Cost of sales	**3,770**	3,872	3,905	3,696	3,201
Research and development	**157**	157	143	124	123
Selling, administrative and other expenses	**408**	466	442	394	378
Depreciation and amortization	**287**	278	261	255	254
Interest on long-term and short-term debt	**228**	269	268	172	193
Pre-tax income (loss) from continuing operations	**(147)**	365	780	978	261
Provision (credit) for income taxes	**(50)**	130	257	381	96
UCC share of net income (loss) from corporate investments carried at equity	**(21)**	(42)	27	33	13
Income (loss) from continuing operations	**(116)**	188	530	608	173
Income from discontinued operations	**107**	120	43	54	59
Net income (loss)—common stockholders	**(28)**	308	573	662	232
Per common share					
Primary —Income (loss) from continuing operations	**$ (1.06)**	$ 1.34	$ 3.76	$ 4.48	$ 1.32
—Net income (loss)	**(0.22)**	2.19	4.07	4.88	1.76
Fully diluted—Income (loss) from continuing operations	**(1.06)**	1.34	3.63	4.29	1.32
—Net income (loss)	**(0.22)**	2.13	3.92	4.66	1.75
From the Balance Sheet (At Year-end)					
Net current assets of continuing operations	**$ 178**	$ 7	$ 22	$ 14	$ 325
Total assets	**6,826**	7,389	7,355	7,327	6,816
Long-term debt	**1,160**	2,058	2,060	2,271	2,842
Total capital	**4,694**	5,338	5,319	4,805	4,637
UCC stockholders' equity	**2,239**	2,373	2,383	1,836	1,247
UCC stockholders' equity per common share	**17.55**	18.88	16.83	13.34	9.43
Other Data					
Dividends on common stock	**$ 126**	$ 138	$ 140	$ 155	$ 195
Dividends per common share	**1.00**	1.00	1.00	1.15	1.50
Common shares outstanding (thousands at year-end)	**127,607**	125,674	141,578	137,602	132,248
Market price per common share—high[b]	**22.63**	24.88	33.25	28.38	32.50
Market price per common share—low[b]	**15.13**	14.13	22.75	17.00	15.50
Capital expenditures	**400**	381	483	380	193
Number of employees—continuing operations (at year-end)	**16,705**	17,722	18,032	17,258	18,071
Selected Financial Ratios					
Total debt/total capital (at year-end)	**52.0%**	54.0%	49.9%	56.1%	67.1%
Income from continuing operations/average UCC stockholders' equity	**—**	7.9%	25.1%	39.4%	15.4%
Dividends on common stock/income from continuing operations	**—**	73.4%	26.4%	25.5%	112.7%

a) Restated (see Note 3 on page 32).
b) Prices are based on New York Stock Exchange composite transactions.

Primary earnings per common share are based on the weighted average number of common and common equivalent shares outstanding during the year. Fully diluted earnings per common share are calculated assuming conversion of convertible subordinated debentures due 2012 and convertible preferred stock. *Net current assets* consists of total current assets, excluding net assets held for sale less total current liabilities. *Total debt* consists of short-term debt, long-term debt and current installments of long-term debt. *Total capital* consists of *Total debt* plus *Minority stockholders' equity in consolidated subsidiaries* and *UCC stockholders' equity.*

Consolidated Statement of Income

Union Carbide Corporation and Subsidiaries

Millions of dollars (except per share figures), year ended December 31,	1991	1990*	1989*
Net Sales	**$4,877**	$5,238	$5,613
Cost of sales, exclusive of depreciation and amortization, shown separately below	**3,770**	3,872	3,905
Research and development	**157**	157	143
Selling, administrative and other expenses	**408**	466	442
Depreciation and amortization	**287**	278	261
Interest on long-term and short-term debt	**228**	269	268
Other expense (income)	**174**	(169)	(186)
Income (Loss) before Provision for Income Taxes—Continuing Operations	**(147)**	365	780
Provision (credit) for income taxes	**(50)**	130	257
Income (Loss) of Consolidated Companies—Continuing Operations	**(97)**	235	523
Less: Minority stockholders' share of income (loss)	**(2)**	5	20
Plus: UCC share of net income (loss) from corporate investments carried at equity	**(21)**	(42)	27
Income (Loss) from Continuing Operations	**$ (116)**	$ 188	$ 530
Income from discontinued operations, net of income taxes and minority interest	**107**	120	43
Net Income (Loss)	**(9)**	308	573
Preferred stock dividends, net of income taxes	**19**	—	—
Net Income (Loss)—Common Stockholders	**$ (28)**	$ 308	$ 573
Earnings per Common Share			
Primary—Income (loss) from continuing operations	**$ (1.06)**	$ 1.34	$ 3.76
Income from discontinued operations	**$ 0.84**	$ 0.85	$ 0.31
Net income (loss)	**$ (0.22)**	$ 2.19	$ 4.07
Fully diluted—Income (loss) from continuing operations	**$ (1.06)**	$ 1.34	$ 3.63
Income from discontinued operations	**$ 0.84**	$ 0.79	$ 0.29
Net income (loss)	**$ (0.22)**	$ 2.13	$ 3.92
Cash Dividends Declared per Common Share	**$ 1.00**	$ 1.00	$ 1.00

*Restated (see Note 3 on page 32).

The Notes to Financial Statements on pages 31 through 45 should be read in conjunction with this statement.

Consolidated Balance Sheet

Union Carbide Corporation and Subsidiaries

Millions of dollars at December 31,	1991	1990*
Assets		
Cash and cash equivalents	$ 64	$ 54
Notes and accounts receivable	846	1,103
Inventories		
Raw materials and supplies	146	160
Work in process	56	75
Finished goods	327	347
	529	582
Prepaid expenses	133	130
Due from Union Carbide Industrial Gases	1,038	—
Due from UCAR Carbon	—	226
Net assets held for sale	31	121
Total Current Assets	2,641	2,216
Property, plant and equipment	5,542	5,218
Less: Accumulated depreciation	3,043	2,832
Net Fixed Assets	2,499	2,386
Companies carried at equity	479	605
Other investments and advances	124	123
Total Investments and Advances	603	728
Net assets of discontinued business	650	645
Due from Union Carbide Industrial Gases	—	989
Other assets	433	425
Total Assets	$6,826	$7,389

Liabilities and Stockholders' Equity	1991	1990*
Accounts payable	$ 496	$ 530
Short-term debt	606	446
Payments to be made within one year on long-term debt	676	379
Accrued income and other taxes	12	100
Other accrued liabilities	642	633
Total Current Liabilities	2,432	2,088
Long-term debt	1,160	2,058
Other long-term obligations	415	275
Deferred credits	543	513
Minority stockholders' equity in consolidated subsidiaries	13	82
Convertible preferred stock	324	325
Unearned employee compensation	(300)	(325)
UCC stockholders' equity		
Common stock		
Authorized—500,000,000 shares		
Issued—130,256,120 shares (128,338,664 shares in 1990)	130	128
Additional paid-in capital	33	—
Equity adjustment from foreign currency translation	(8)	7
Retained earnings	2,130	2,284
	2,285	2,419
Less: treasury stock, at cost—2,648,837 shares (2,664,975 shares in 1990)	46	46
Total UCC Stockholders' Equity	2,239	2,373
Total Liabilities and Stockholders' Equity	$6,826	$7,389

*Restated (see Note 3 on page 32).

The Notes to Financial Statements on pages 31 through 45 should be read in conjunction with this statement.

Consolidated Statement of Cash Flows

Union Carbide Corporation and Subsidiaries

Increase (Decrease) in Cash and Cash Equivalents

Millions of dollars, year ended December 31,	**1991**	1990[a]	1989[a]
Operations			
Income (loss) from continuing operations	**$(116)**	$ 188	$ 530
Noncash charges (credits) to net income			
Depreciation and amortization	**287**	278	261
Deferred income taxes	**(52)**	20	57
Other noncash charges[b]	**225**	93	54
Investing charges (credits) to net income	**20**	(69)	(105)
Working capital[c]	**(21)**	(101)	(336)
Long-term assets and liabilities	**138**	18	(111)
Cash flow from operations	**481**	427	350
Investing			
Capital expenditures	**(400)**	(381)	(483)
Investments	**(47)**	(204)	(40)
Redemption/sale of assets	**556**	261	271
Net cash transferred from (to) Union Carbide Industrial Gases	**(7)**	(5)	3
Cash flow from (used for) investing	**102**	(329)	(249)
Financing			
Short-term debt	**121**	55	157
Net borrowings (reductions) long-term debt— pursuant to major bank credit agreements	**(17)**	575	33
Other long-term borrowings	**159**	87	611
Issuance of common stock	**35**	69	96
Purchase of common stock	**—**	(353)	—
Issuance of convertible preferred stock	**—**	325	—
Loan to ESOP	**—**	(325)	—
Long-term debt reductions	**(695)**	(211)	(839)
Redemption by a consolidated subsidiary of its preferred stock	**—**	(249)	—
Payment of dividends	**(155)**	(138)	(140)
Other, including minority transactions	**(17)**	(2)	—
Cash flow used for financing	**(569)**	(167)	(82)
Effect of exchange rate changes on cash and cash equivalents	**(4)**	(8)	(23)
Change in cash and cash equivalents	**10**	(77)	(4)
Cash and cash equivalents beginning-of-year	**54**	131	135
Cash and cash equivalents end-of-year	**$ 64**	$ 54	$ 131

a) Restated (see Note 3 on page 32).

b) Includes for 1991 a $209 million noncash charge relating mainly to the Corporation's profit improvement program (see Note 6 on page 34).

c) Net change in working capital by component (excluding cash and cash equivalents, due from Union Carbide Industrial Gases, due from UCAR Carbon, net assets held for sale, deferred income taxes and short-term debt):

	1991	1990	1989
(Increase) decrease in current assets			
Notes and accounts receivable	**$ 211**	$(128)	$ (35)
Inventories	**26**	2	30
Prepaid expenses	**(23)**	8	15
Increase (decrease) in payables and accruals	**(235)**	17	(346)
Working capital	**$ (21)**	$(101)	$(336)

The Notes to Financial Statements on pages 31 through 45 should be read in conjunction with this statement.

Consolidated Statement of Stockholders' Equity

Union Carbide Corporation and Subsidiaries

	1991		1990		1989	
	Shares (in thousands)	Millions of dollars	Shares (in thousands)	Millions of dollars	Shares (in thousands)	Millions of dollars
Common Stock						
Balance at January 1	**128,339**	**$ 128**	141,578	$ 142	214,410	$ 214
Issued:						
For the Dividend Reinvestment and Stock Purchase Plan	**587**	**1**	592	—	869	1
For employee savings and incentive plans	**1,330**	**1**	3,201	3	2,523	3
Retirement of treasury shares	**—**	**—**	(17,032)	(17)	(76,224)	(76)
Balance at December 31	**130,256**	**$ 130**	128,339	$ 128	141,578	$ 142
Treasury Stock						
Balance at January 1	**2,665**	**$ 46**	—	$ —	76,808	$ 2,199
Purchased under self-tender offer	**—**	**—**	20,332	353	—	—
Issued:						
For the Dividend Reinvestment and Stock Purchase Plan	**—**	**—**	—	—	(11)	—
For employee savings and incentive plans	**—**	**—**	—	—	(573)	(16)
In a business combination transaction	**(16)**	**—**	(635)	(11)	—	—
Retirement of treasury shares	**—**	**—**	(17,032)	(296)	(76,224)	(2,183)
Balance at December 31	**2,649**	**$ 46**	2,665	$ 46	—	$ —
Additional Paid-in Capital						
Balance at January 1		**$ —**		$ 38		$ 1,322
Issued:						
For the Dividend Reinvestment and Stock Purchase Plan		**11**		10		22
For employee savings and incentive plans		**22**		56		53
Retirement of a subsidiary's preferred stock		**—**		(5)		—
Retirement of treasury shares		**—**		(99)		(1,359)
Balance at December 31		**$ 33**		$ —		$ 38
Equity Adjustment from Foreign Currency Translation						
Balance at January 1		**$ 7**		$ (90)		$ (106)
Translation and other adjustments		**(13)**		73		16
Sale of interest in UCAR Carbon		**(2)**		24		—
Balance at December 31		**$ (8)**		$ 7		$ (90)
Retained Earnings						
Balance at January 1		**$2,284**		$2,293		$ 2,605
Net income		**(28)**		308		573
Dividends on common stock		**(126)**		(138)		(140)
Retirement of treasury shares		**—**		(179)		(748)
Adjustment to the 1986 Special Cash Distribution		**—**		—		3
Balance at December 31		**$2,130**		$2,284		$ 2,293

The Notes to Financial Statements on pages 31 through 45 should be read in conjunction with this statement.

Notes to Financial Statements

Index

The subjects covered by the Notes to Financial Statements are found on the following pages:

1. Summary of Significant Accounting Policies

Principles of Consolidation—The consolidated financial statements include the accounts of all significant subsidiaries except the Industrial Gases business, which is to be spun off to shareholders and is included in *Net assets of discontinued business* (see Note 3); Union Carbide India Limited and two subsidiaries in Zimbabwe, which are included in *Other investments and advances;* and in 1990 and 1989 the carbon products business, which is carried at equity in net assets (see Note 4). All significant intercompany transactions have been eliminated in consolidation. Investments in significant companies 20 percent to 50 percent owned and partnerships are carried at equity in net assets. In the *Consolidated Statement of Income,* Union Carbide's share of the net income of companies carried at equity, plus the net gain or loss from the sale of equity interests, is reported under the caption *UCC share of net income (loss) from corporate investments carried at equity.* Pre-tax partnership income is included in *Other expense (income).* Other investments are carried generally at cost or less.

Foreign Currency Translation—Generally, except for Latin America, unrealized gains and losses resulting from translating foreign subsidiaries' assets and liabilities into U.S. dollars are accumulated in an equity account on the balance sheet until such time as the subsidiary is sold or substantially or completely liquidated. Translation gains and losses relating to operations of subsidiaries in Latin America, where hyperinflation exists, are included in the income statement.

Financial Instruments—Financial instruments are used to hedge financial risk caused by fluctuating currency and interest rates. The amounts to be paid or received on interest-rate swap agreements accrue and are recognized over the lives of the agreements.

Premiums and discounts on forward exchange contracts are amortized over the lives of the contracts. Foreign currency gains and losses are recognized currently as other income or other expense.

In addition, the Corporation may enter into unmatched interest rate swaps as a means of offsetting earnings fluctuations due to cyclical business conditions. These transactions are marked to market and the results recognized currently as other income or other expense.

Cash Equivalents—The Corporation considers cash equivalents to be all highly liquid investments that are readily convertible to known amounts of cash and so near their maturity that they present insignificant risk of changes in value because of changes in interest rates.

Inventories—Inventories are stated at cost or market, whichever is lower. These amounts do not include depreciation and amortization, the impact of which is not significant to the financial statements. Cost is determined generally on the "last-in, first-out" (LIFO) method for most North American companies. The "average cost" method is used by most other subsidiaries.

Approximately 65 percent of inventory amounts before application of the LIFO method at Dec. 31, 1991

(61 percent at Dec. 31, 1990), has been valued on the LIFO basis. It is estimated that if inventories had been valued at current costs, they would have been approximately $337 million and $342 million higher than reported at Dec. 31, 1991, and Dec. 31, 1990, respectively.

The reduction of inventory quantities in 1991 has resulted in a liquidation of LIFO inventories acquired at lower costs prevailing in prior years. This liquidation reduced cost of sales by $11 million and increased net income by $7 million in 1991.

Fixed Assets — Fixed assets are carried at cost. Expenditures for replacements are capitalized, and the replaced items are retired. Gains and losses from the sale of property are included in income.

Depreciation is calculated on a straight-line basis. The Corporation and its subsidiaries generally use accelerated depreciation methods for tax purposes where appropriate.

Patents, Trademarks and Goodwill — Amounts paid for purchased patents and newly acquired subsidiaries in excess of the fair value of the net assets of such subsidiaries have been charged to patents, trademarks and goodwill. The portion of such amounts determined to be attributable to patents is amortized over their remaining lives while trademarks and goodwill are amortized over the estimated period of benefit, generally five to forty years.

Research and Development — Research and development costs are charged to expense as incurred. Depreciation expense applicable to research and development facilities and equipment is included in *Depreciation and amortization* in the income statement ($13 million in 1991, $12 million in 1990 and $10 million in 1989).

Income Taxes — Provision has been made for deferred income taxes where differences exist between the period in which transactions affect taxable income and the period in which they enter into the determination of income in the financial statements.

Retirement Programs — The cost of pension benefits under the U.S. Retirement Program is determined by an independent actuarial firm using the "projected unit credit" actuarial cost method with an unrecognized net asset at Jan. 1, 1986, amortized over 15 years. Contributions to this program are made in accordance with the regulations of the Employee Retirement Income Security Act of 1974.

Earnings per Common Share — Primary earnings per common share is computed by dividing net income (loss) — common stockholders by the weighted average number of common shares outstanding during the year, and common stock equivalents related to dilutive stock options. Fully diluted earnings per common share is computed by dividing adjusted net income (loss) — common stockholders by the weighted average number of common shares outstanding, common stock equivalents related to dilutive stock options, and common shares issuable upon conversion of debentures and convertible preferred stock.

The number of common shares used to compute earnings per share amounts for the years indicated was as follows:

	1991	1990	1989
Primary	**126,776,208**	141,012,196	140,827,913
Fully diluted	**126,841,198**	152,635,571	150,546,223

2. Holding Company Formation

Effective July 1, 1989, Union Carbide Corporation became a holding company through a binding share exchange in which each outstanding share of the predecessor company was exchanged automatically for one share of the holding company. Following the exchange, the holding company took the name "Union Carbide Corporation" and the predecessor company changed its name from "Union Carbide Corporation" to "Union Carbide Chemicals and Plastics Company Inc." ("UCC&P Inc."). UCC&P Inc. is a wholly owned subsidiary of the holding company. A financial summary of UCC&P Inc. and its consolidated subsidiaries is presented in Note 10.

3. Net Assets of Discontinued Business

On Dec. 16, 1991, the Board of Directors of the Corporation approved a plan to spin off its Industrial Gases business to shareholders. The anticipated spin-off will result in the Industrial Gases business operating as a free-standing company whose common shares will be publicly traded. The Corporation expects the spin-off transaction to be completed by the end of the second quarter of 1992, after receipt of an Internal Revenue Service ruling or acceptable opinion of counsel that the transaction will be tax-free. In the accompanying consolidated financial statements, the Industrial Gases business has been reported as a discontinued business. Previously reported financial statements have been restated.

The following is a summary of selected components of income from operations of the discontinued business:

Millions of dollars	**1991**	1990	1989
Net sales[a]	**$2,469**	$2,420	$2,073
Income before provision for income taxes	**$ 207**	$ 266	$ 104
Provision for income taxes	**68**	149	32
Minority interest	**35**	33	36
Net income from corporate investments carried at equity	**3**	36	7
Net income	**$ 107**	$ 120	$ 43

a) Includes net sales to Union Carbide of $41 million in 1991 ($37 million in 1990 and $32 million in 1989).

The net assets of the discontinued business have been segregated in the *Consolidated Balance Sheet.* The following is the composition of these net assets:

Millions of dollars	**1991**	1990
Current assets	**$ 824**	$ 763
Net fixed assets	**2,338**	1,939
Other noncurrent assets	**289**	325
Total assets	**$3,451**	$3,027
Current liabilities	**1,862[a]**	497
Noncurrent liabilities and deferred credits	**557**	1,629[b]
Minority interest in consolidated subsidiaries	**382**	256
Net assets of discontinued business	**$ 650**	$ 645

a) Includes $1.038 billion owed to UCC.
b) Includes $989 million owed to UCC.

In connection with the spin-off, it is anticipated that Industrial Gases will repay all or substantially all amounts due to the Corporation using proceeds from borrowings to be incurred by Industrial Gases from third-party lenders. The Corporation's stockholders' equity will be reduced by the net assets of the Industrial Gases business on the date of the spin-off.

4. Sale of Interest in Carbon Products Business

In November 1990, the Corporation announced an agreement for the sale of 50 percent of the equity in UCAR Carbon Company Inc. and certain other wholly owned subsidiaries engaged in the carbon products business (collectively referred to as UCAR Carbon). UCAR Carbon constituted the former Carbon Products industry segment. In February 1991, the Corporation completed the sale of a 50 percent interest in UCAR Carbon to Mitsubishi Corporation of Tokyo and retained ownership of the remaining 50 percent interest. The before-tax cash proceeds from the sale amounted to $233 million.

Consistent with its anticipated reduced ownership interest in this business, the Corporation commenced reporting its investment in this business under the equity method of accounting in 1990 (see Note 14). Financial statements prior to 1990 have been restated to reflect this change. The net assets of the carbon business sold during 1991 were included in *Net assets held for sale* in the 1990 balance sheet, at net realizable value.

The following is a financial summary of UCAR Carbon for 1990 and 1989. In 1991, UCAR Carbon is shown as a 20 percent to 50 percent corporate investment (see Note 14).

Millions of dollars	1990	1989
Net sales	$711	$782
Cost of sales	550	613
Depreciation and amortization	57	48
Income (loss) before provision for income taxes	(5)	15
Net income from operations	—	17
UCC share of net income (loss)	(86)	17
Current assets	$370	$311
Net fixed assets	497	433
Other noncurrent assets	24	53
Total assets	$891	$797
Current liabilities	$189	$166
Long-term debt	234	211
Other noncurrent liabilities	72	50
Minority interest in consolidated subsidiaries	57	50
Total liabilities	$552	$477
Net assets	$339	$320
Net assets held for sale	$121	$ —
UCC equity in net assets	$174	$320

In 1990, UCC share of net income (loss) includes a loss of $86 million, after income taxes of $104 million, from the sale of 50 percent of the Corporation's equity in UCAR Carbon. The disproportionate amount of U.S. income taxes on the sale primarily stems from the lower U.S. tax basis of the investments in certain of UCAR Carbon's foreign subsidiaries compared to their book value, resulting in a larger reportable gain for income tax purposes than for financial reporting. The higher book values resulted from retention by the subsidiaries of a substantial portion of their earnings.

5. Financial Instruments

Off-Balance Sheet Hedging Activities — Union Carbide uses various off-balance sheet financial instruments to manage exposure to general economic and specific financial market risk caused by currency, interest rate and business cycle fluctuations. At Dec. 31, 1991, market risk was not expected to have a material adverse effect on the consolidated financial position of the Corporation.

The notional amount of Union Carbide's interest rate swap agreements for continuing operations was $325 million at Dec. 31, 1991 ($825 million at Dec. 31, 1990). Under the agreements, Union Carbide either makes payments to or receives payments from counterparties based on floating rate indices, and either receives or makes payments based on a fixed rate U.S. Treasury security. The agreements have a remaining average life of 2.9 years at Dec. 31, 1991 (two years at Dec. 31, 1990), and approximately 66 percent of the swaps were offsetting (approximately eight percent for 1990).

Union Carbide uses these agreements to hedge its debt portfolio and to offset fluctuations in earnings caused by changes in the business cycle. All of the $325 million outstanding agreements at Dec. 31, 1991, were hedges of the debt portfolio, converting a portion of the total debt portfolio from floating to fixed rate liabilities ($275 million at Dec. 31, 1990). Exposure to market risk results whenever the floating rate indices fall below the fixed rate. At Dec. 31, 1990, swaps with a notional amount of $550 million were used to offset earnings fluctuations. Under these agreements, Union Carbide made floating rate payments and received fixed rate payments. Exposure to market risk for these agreements results whenever the floating rate indices rise above the fixed rate.

Forward Rate Agreements (FRA's) are used to hedge variable interest rate exposure on borrowings. There were no FRA's oustanding at Dec. 31, 1991 ($133 million at Dec. 31, 1990). FRA's usually mature within a six-month period.

Union Carbide enters into foreign currency swaps to hedge various multicurrency working capital financings in Europe. At year-end 1991, $82 million of such swaps were outstanding ($148 million at Dec. 31, 1990), with an average life of 1.4 years for both periods. Under these agreements, Union Carbide exchanges either U.S. dollars or a foreign currency with its counterparties and contracts to service the agreement in that currency — effectively re-denominating its debt. At year-end 1991, approximately 78 percent of the swaps were offsetting (approximately 60 percent for 1990).

The amount of forward foreign exchange contracts, used by Union Carbide as hedging protection against foreign currency exposure, was $514 million at Dec. 31, 1991 ($568 million at Dec. 31, 1990). Market risk arises from fluctuation of currency rates during the period that transactions are outstanding.

Sales of Accounts Receivable — Union Carbide sold certain receivables with recourse to various banks for proceeds of $157 million in 1991 ($304 million in 1990 and $472 million in 1989). At Dec. 31, 1991, approximately $35 million remains uncollected ($26 million in 1990) and is included in contingent obligations (see Note 22).

6. Special Charge

Below is a summary of the before-tax special charge taken during 1991.

	Millions of dollars
Severance costs	$ 83
Relocation and facility consolidation costs	35
Joint venture charges	60
Legal and other	31
	$209

During 1991, the Corporation recorded a before-tax special charge, associated mainly with the profit improvement program, of $209 million ($160 million after-tax). The charge includes severance and relocation costs totaling $118 million relating to staff reductions associated with work process simplification efforts, anticipated staff reductions triggered by the Industrial Gases spin-off, asset sales and costs associated with consolidation of certain customer service functions and headquarters operations. Also included is a $60 million write-down of the Corporation's share of UOP's fluid cracking catalyst business. UOP is a partnership between Union Carbide Corporation and Allied-Signal Inc. In 1991, UOP wrote down to net realizable value certain assets applicable to its fluid cracking catalyst business totaling $120 million, with the Corporation's share being $60 million.

The balance includes $20 million mainly associated with Bhopal-related civil litigation, including funding of the construction of a new hospital, and costs of $11 million representing anticipated costs of the Industrial Gases spin-off.

These costs have been included in *Other expense (income)* (see Note 7).

The after-tax charge of $160 million includes a $10 million after-tax charge representing the Corporation's share of losses related to the restructuring of certain production facilities of UCAR Carbon, a 50 percent-owned corporate investment (see Note 14).

7. Other Expense (Income)

The following is an analysis of *Other expense (income):*

Millions of dollars	1991	1990	1989
Investment income (principally from short-term investments)	**$ (14)**	$ (25)	$ (38)
Foreign currency adjustments	**26**	34	11
Special charge[a]	**149**	—	—
Sales and disposals of businesses and other assets[b]	**34**	(64)	(108)
Partnership (income) loss[c]	**22**	(70)	(82)
Interest income from discontinued business[d]	**(90)**	(108)	(104)
Other[e]	**47**	64	135
	$174	$(169)	$(186)

a) See Note 6 — Special Charge.

b) Includes for 1991 a charge of $35 million in connection with the sale and wind-down of the transformer retrofill service business of the Unison Transformer Services subsidiary. Includes for 1990 a gain of $29 million (of a total pre-tax gain of $31 million) from the sale of the primary alcohol ethoxylates business and a gain of $24 million from the sale of the polysilicon business. Includes for 1989 a gain of $96 million from the sale of the worldwide urethane polyols and propylene glycols businesses.

c) Includes Union Carbide's share ($60 million) of UOP's write-down to net realizable value certain assets applicable to its fluid cracking catalyst business (see Note 6).

d) Interest income from the Industrial Gases business on debt owed to Union Carbide.

e) Includes a gain of $16 million on sale of interest rate swaps in 1991 and expenses of $32 million related to discontinued and noncore businesses. Includes for 1990 expenses of $64 million related to discontinued and noncore businesses and facilities and a $15 million charge associated with cost reduction programs. Includes for 1989 a $90 million write-down to net realizable value of the polysilicon business.

8. Interest Costs

The following is an analysis of *Interest on long-term and short-term debt:*

Millions of dollars	1991	1990	1989
Interest incurred on debt	**$245**	$284	$284
Less: Related foreign currency adjustments	**3**	4	2
Interest capitalized	**14**	11	14
	$228	$269	$268

9. Geographic Segment Information

Audited geographic segment data are presented in *Geographic Segment Data* on page 23.

Union Carbide's businesses and products are described on pages 6 through 12.

10. Union Carbide Chemicals and Plastics Company Inc.

The Corporation has unconditionally guaranteed the payment of principal, premium, if any, and interest on all debt of UCC&P Inc. registered with the Securities and Exchange Commission.

The following is a financial summary of UCC&P Inc. and its consolidated subsidiaries:

Millions of dollars	1991	1990	1989
Net sales	**$4,877**	$5,238	$5,613
Cost of sales	**3,785**	3,872	3,905
Depreciation and amortization	**283**	276	261
Income (loss) from continuing operations	**(114)**	275	514
Net income (loss)	**(7)**	405	573
Current assets	**$2,640**	$2,151	$2,220
Noncurrent assets	**3,361**	4,332	4,608
Net assets of discontinued business*	**650**	645	527
Total assets	**$6,651**	$7,128	$7,355
Current liabilities	**$2,363**	$2,147	$1,918
Noncurrent liabilities	**2,123**	2,529	2,813
Minority interest in consolidated subsidiaries	**13**	82	279
Net assets	**$2,152**	$2,370	$2,345

*The net assets of discontinued business represent the net assets of the Industrial Gases business expected to be spun off to shareholders (see Note 3). These net assets will be transferred to UCC prior to distribution to shareholders.

11. Income Taxes

The following is an analysis of income tax expense:

Millions of dollars	1991		1990		1989	
	Current	**Deferred**	Current	Deferred	Current	Deferred
U.S. Federal income taxes	**$(21)**	**$(53)**	$ 54	$17	$116	$50
U.S. business and research and experimentation tax credits	**(3)**	**—**	(2)	—	(2)	—
U.S. state and local taxes based on income	**13**	**—**	21	—	34	—
Non-U.S. income taxes	**13**	**1**	37	3	52	7
	$ 2	**$(52)**	$110	$20	$200	$57
Provision (credit) for income taxes	**$(50)**		$130		$257	

The following table summarizes the tax effects of timing differences included in the deferred portion of the provision for income taxes:

Millions of dollars	1991	1990	1989
U.S.			
Pension adjustments	**$ 12**	$13	$ 15
Depreciation and amortization	**17**	5	(71)
Environmental and litigation	**(22)**	(5)	37
Severance costs	**(22)**	—	—
Write-offs/write-downs of assets	**(7)**	(2)	43
Employee stock ownership plan	**(4)**	—	—
Facilities shutdown	**(6)**	(1)	(2)
Lease deferrals	**(3)**	(3)	(3)
Alternative minimum tax	**(7)**	—	—
Other, net	**(11)**	10	31
Non-U.S.			
Depreciation and amortization	**9**	7	4
Restructuring costs	**(7)**	—	—
Other, net	**(1)**	(4)	3
	$(52)	$20	$ 57

The consolidated effective income tax rate was 34.0 percent in 1991, 35.6 percent in 1990 and 32.9 percent in 1989. An analysis of the difference between *Provision (credit) for income taxes* and the amount computed by applying the statutory Federal income tax rate to *Income (Loss) Before Provision for Income Taxes—Continuing Operations* is as follows:

	1991		1990		1989	
	Millions of dollars	**% of pre-tax loss**	Millions of dollars	% of pre-tax income	Millions of dollars	% of pre-tax income
Tax at statutory Federal rate	**$(50)**	**34.0**	$124	34.0	$265	34.0
Taxes related to operations outside the United States	**(11)**	**7.4**	11	3.0	11	1.4
U.S. state and local taxes based on income	**9**	**(6.1)**	14	3.8	22	2.8
Foreign Sales Corporation	**(5)**	**3.4**	(7)	(1.9)	(17)	(2.2)
Reversal of timing differences	**3**	**(2.0)**	(1)	(0.3)	(14)	(1.8)
Other, net	**4**	**(2.7)**	(11)	(3.0)	(10)	(1.3)
	$(50)	**34.0**	$130	35.6	$257	32.9

11. Income Taxes (Continued)

Statement of Financial Accounting Standards No. 109, Accounting for Income Taxes (SFAS No. 109), was issued in February 1992 and supersedes SFAS No. 96, which the Corporation had not yet adopted. The Corporation plans to adopt SFAS No. 109 in the first quarter of 1993. Due to the recent issuance of the new standard, the Corporation has not determined its impact on the financial statements; however, it is believed that initial adoption will not have a material adverse effect on stockholders' equity.

The following is a summary of the U.S. and Non-U.S. components of *Income (Loss) Before Provision for Income Taxes—Continuing Operations:*

Millions of dollars	**1991**	1990	1989
Income (loss) before provision for income taxes:			
U.S.	**$(145)**	$308	$714
Non-U.S.	**(2)**	57	66
	$(147)	$365	$780

The Corporation provides for taxes on undistributed earnings of affiliates included in consolidated retained earnings to the extent that such earnings are planned to be remitted and not reinvested indefinitely. Undistributed earnings of affiliates intended to be reinvested indefinitely amounted to approximately $400 million at Dec. 31, 1991.

12. Supplementary Balance Sheet Detail

Millions of dollars at December 31,	**1991**	1990
Notes and accounts receivable		
Trade[a]	**$ 656**	$ 796
Other	**200**	317
	856	1,113
Less: Allowance for doubtful accounts	**10**	10
	$ 846	$1,103
Property, plant and equipment		
Land and improvements	**$ 295**	$ 274
Buildings	**370**	348
Machinery and equipment	**4,432**	4,228
Construction in progress and other	**445**	368
	$5,542	$5,218
Other assets		
Deferred charges	**$ 204**	$ 161
Long-term receivables	**108**	139
Patents, trademarks and goodwill	**121**	125
	$ 433	$ 425
Other accrued liabilities		
Accrued accounts payable	**$ 252**	$ 292
Payrolls	**66**	66
Severance and relocation costs	**107**	10
Other	**217**	265
	$ 642	$ 633
Deferred credits		
Income taxes[b]	**$ 365**	$ 324
Deferred gain on sales of the Danbury Headquarters and Tarrytown properties	**99**	109
Other	**79**	80
	$ 543	$ 513
Equity adjustment from foreign currency translation (by geographic area)		
Canada	**$ (27)**	$ (23)
Europe	**34**	44
Far East & Other	**(15)**	(14)
	$ (8)	$ 7

a) Certain receivables were sold with recourse to various banks in 1991 and 1990 (see Note 5).

b) Deferred income taxes related to current items are included in *Prepaid expenses* in the amount of $61 million in 1991 ($69 million in 1990).

13. Supplementary Cash Flow Detail

Investing

Increase in cash and cash equivalents

Millions of dollars	**1991**	1990	1989
Redemption/Sale of Assets			
Investments redeemed	**$ 102**	$ 119	$ 44
Sale of fixed and other assets	**454**	142	227
	$ 556	$ 261	$ 271

Financing

Increase (decrease) in cash and cash equivalents

Millions of dollars	**1991**	1990	1989
Short-Term Debt			
Net change in short-term debt (maturities of three months or less)	**$(430)**	$ 5	$ 143
Borrowings	**931**	212	199
Reductions	**(380)**	(162)	(185)
	$ 121	$ 55	$ 157
Net Borrowings (Reductions) Long-Term Debt— Pursuant to Major Bank Credit Agreements			
Borrowings	**$ 44**	$1,570	$ 397
Reductions	**(61)**	(995)	(364)
	$ (17)	$ 575	$ 33
Other, Including Minority Transactions			
Loan payments from ESOP	**$ 12**	$ —	$ —
Minority purchases and dividends	**(29)**	(2)	—
	$ (17)	$ (2)	$ —

Cash Paid for Interest and Income Taxes

Millions of dollars	**1991**	1990	1989
Interest (net of amount capitalized)	**$ 237**	$ 234	$ 276
Income taxes	**$ 57**	$ 70	$ 235

Noncash Investing and Financing Activities

In 1990, the Corporation issued $11 million of treasury stock in a business combination transaction.

14. Companies Carried at Equity

The following are financial summaries of partnerships and 20 percent to 50 percent corporate investments carried at equity:

	Partnerships		
Millions of dollars	**1991**	1990	1989
Net sales[a]	**$1,502**	$1,491	$1,478
Cost of sales	**1,029**	1,005	894
Depreciation	**47**	42	34
Partnership income (loss)	**(14)**	169	151
UCC share of partnership income (loss)[b]	**(22)**	70	82
Current assets	**$ 505**	$ 510	$ 507
Noncurrent assets	**671**	691	584
Total assets	**$1,176**	$1,201	$1,091
Current liabilities	**$ 296**	$ 208	$ 196
Noncurrent liabilities	**355**	321	266
Total liabilities	**$ 651**	$ 529	$ 462
Net assets	**$ 525**	$ 672	$ 629
UCC equity	**$ 285**	$ 371	$ 351

a) Includes $111 million net sales to Union Carbide in 1991 ($126 million in 1990 and $87 million in 1989).

b) UCC share of partnership income (loss) has been reported in *Other expense (income)* (see Note 7).

	20%–50% Corporate Investments		
Millions of dollars	**1991[a]**	1990[b]	1989
Net sales[c]	**$1,057**	$614	$634
Cost of sales	**840**	462	466
Depreciation	**53**	24	28
Net income (loss)	**(41)**	18	24
UCC share of net income (loss)	**(21)[d]**	44[e]	10
Current assets	**$ 537**	$205	$305
Noncurrent assets	**653**	136	269
Total assets	**$1,190**	$341	$574
Current liabilities	**$ 537**	$203	$244
Noncurrent liabilities	**262**	44	156
Total liabilities	**$ 799**	$247	$400
Net assets	**$ 391**	$ 94	$174
UCC equity	**$ 194**	$ 60	$ 98

a) Includes UCAR Carbon in 1991 (see Note 4 for a financial summary of UCAR Carbon for 1990 and 1989).

b) For 1990, assets and liabilities exclude amounts for KEMET Electronics Corporation, which was sold in the fourth quarter.

c) Includes $50 million net sales to UCC and its consolidated subsidiaries in 1991 ($39 million in 1990 and $45 million in 1989).

d) Includes a charge of $10 million representing the Corporation's share of losses related to the restructuring of certain production facilities of UCAR Carbon.

e) Includes a gain of $31 million from the sale of the Corporation's 50 percent interest in KEMET Electronics Corporation.

14. Companies Carried At Equity *(Continued)*

For 1991, a $50 million line of credit, committed for a 13-month period, was provided to an affiliate. It was unused at Dec. 31, 1991.

The following is a summary of the components of *UCC share of net income (loss) from corporate investments carried at equity* and *Companies carried at equity.*

Millions of dollars	**1991**	1990	1989
UCC share of net income (loss) from corporate investments — 20%–50% owned	**$ (21)**	$ 44	$ 10
UCAR Carbon (see Note 4)	**—**	(86)	17
UCC share of net income (loss) from corporate investments carried at equity	**$ (21)**	$ (42)	$ 27
UCC equity in net assets partnerships	**$285**	$371	$351
Corporate investments — 20%–50% owned	**194**	60	98
UCAR Carbon (see Note 4)	**—**	174	320
Companies carried at equity	**$479**	$605	$769

15. International Subsidiaries

The following is a financial summary of consolidated international subsidiaries:

Millions of dollars	**1991**	1990	1989
Net sales	**$1,347**	$1,411	$1,422
Net income (loss)	**$ (2)**	$ 31	$ 9
UCC share	**$ (1)**	$ 32	$ 7
Total assets	**$1,618**	$1,802	$1,595
Less: Total liabilities	**903**	1,139	1,336
Net assets	**$ 715**	$ 663	$ 259
UCC equity	**$ 704**	$ 607	$ 254

16. Long-Term Debt

Millions of dollars at December 31,	**1991**	1990
Union Carbide Corporation		
Commercial Paper, 8.36% effective rate for 1990	**$ —**	$ 441
Domestic Subsidiary (UCC&P Inc.)		
5.30% Sinking Fund Debentures, with equal annual sinking fund payments to 1997	**75**	88
7.50% Sinking Fund Debentures due 2006, issued at a discount (effective rate 7.55%) with annual sinking fund payments to 2005	**158**	166
7.50% Convertible Subordinated Debentures due 2012, convertible into common stock at $35.50 per share	**345**	345
8.50% Sinking Fund Debentures due 2005, with annual sinking fund payments to 2004	**225**	237
9.35% Sinking Fund Debentures due 2009, with annual sinking fund payments to 2008	**180**	190
9.35% Senior Notes due 1992	**150**	150
9.75% Senior Subordinated Notes due 1994	**350**	350
14.25% Senior Notes due 1996, issued at a premium (effective rate 13.98%)	**—**	19
15.00% Senior Debentures due 2006, issued at a premium (effective rate 14.32%)	**12**	12
Variable rate, medium term notes due 1996	**100**	—
Major bank credit agreement and money market borrowings	**—**	190
Pollution control and other facility obligations	**240**	207
Obligations under capital leases	**27**	31
Other debt — various maturities and interest rates	**2**	6
International Subsidiaries		
Obligation under capital lease	**62**	63
Borrowings under major bank credit agreements	**—**	61
Other debt — various maturities and interest rates	**18**	23
	1,944	2,579
Less: Bonds held for sinking fund	**108**	142
	1,836	2,437
Less: Payments to be made within one year	**676**	379
	$1,160	$2,058

16. Long-Term Debt *(Continued)*

Union Carbide has two major domestic bank credit agreements totaling $1.1 billion, with $350 million committed until December 1993 and the remainder committed until December 1994. At Dec. 31, 1991, Union Carbide had $1,056 million of available commitments under the agreements and had options available to borrow at various rates on a revolving basis. The effective interest rate on borrowings under the agreements was approximately 6.2 percent in 1991 (8.0 percent in 1990 and 8.9 percent in 1989). The Corporation has guaranteed UCC&P Inc.'s borrowings under the agreements.

The bank credit agreements and the indentures for debt contain various restrictive covenants. These covenants, among other things, restrict the ability of Union Carbide or UCC&P Inc. to merge with another entity, incur or guarantee debt, create liens against assets, sell or transfer certain assets, pay dividends or make other distributions beyond certain limits with respect to UCC&P Inc.'s capital stock, sell shares of a subsidiary's capital stock or issue preferred stock of a subsidiary. Also, the bank credit agreements require Union Carbide to meet leverage, net worth and interest coverage ratios.

At Dec. 31, 1990, the Corporation's commercial paper borrowings were classified as long-term debt, pursuant to revolving credit agreements discussed above.

Upon distribution of UCIG stock to shareholders (see Note 3), the Corporation will adjust the conversion price of the 7.5 percent Convertible Subordinated Debentures, as required by the applicable antidilution provision of the indenture.

Certain payments that are expected to be made from the proceeds of the retirement of UCIG's obligation to UCC are classified in *Payments to be made within one year on long-term debt.*

Pollution control and other facility obligations represent state, commonwealth and local governmental bond financing of pollution control and other facilities. These tax-exempt obligations mature at various dates from 1992 through 2021, and have an average annual effective interest rate of 7.4 percent.

At Dec. 31, 1991, $95 million of consolidated assets was pledged as security for $97 million of subsidiaries' debt.

Payments due on long-term debt in the four years after 1992 are: 1993, $29 million; 1994, $21 million; 1995, $37 million; 1996, $147 million.

17. Convertible Preferred Stock

In September 1990, the Corporation's Board of Directors authorized the Union Carbide Corporation Employee Stock Ownership Plan (ESOP), which became an integral part of the Corporation's defined contribution benefit plans on Jan. 1, 1991. In November 1990, the Trust for the ESOP purchased 15.1 million shares of a new series of convertible preferred stock (ESOP Stock) from the Corporation for $21.50 per share, or an aggregate purchase price of $325 million. The purchase was funded by a 15-year, 10 percent loan from UCC&P Inc. This loan was subsequently assigned to the Corporation and is recorded on the balance sheet as *Unearned employee compensation.*

The ESOP Stock, which has been classified outside of stockholders' equity, is convertible into the Corporation's common stock at a ratio of one-to-one and has a liquidation price of $21.50. The ESOP Stock has preference in liquidation and each share has the same voting rights as one share of common stock. The ESOP Stock annual dividend rate is $1.90 per share (a yield of 8.84 percent). Dividends on allocated shares are credited quarterly to participating employees' accounts in the form of additional shares of ESOP Stock. Unearned employee compensation is recorded as a reduction of the value of the ESOP Stock and is reduced as ESOP Stock is allocated by the Trustee to participants' accounts.

The terms of the ESOP Stock provide that the ESOP conversion price, liquidation price, dividend and number of shares of ESOP Stock will be adjusted upon the distribution of UCIG stock to shareholders (see Note 3) so that the interests of the ESOP shareholders are not diluted.

Substantially all full-time employees in the U.S. are eligible to participate in the ESOP through the Corporation's matching contribution of 50 percent on employee contributions up to prescribed limits. Record ownership of the ESOP Stock can be held only by the trustee for the ESOP. Cost of the ESOP is recognized as incurred and was $28 million for 1991. During 1991, the ESOP credited 1,163,865 ESOP shares to employees' accounts.

It is UCC's policy to redeem the ESOP preferred stock with cash. During 1991, 40,754 shares were redeemed.

18. UCC Stockholders' Equity

At Dec. 31, 1991 and 1990, there were 25,000,000 shares of preferred stock ($1 par value) authorized, of which 15,075,525 shares were issued and outstanding (15,116,279 shares at Dec. 31, 1990).

In October 1990, the Corporation purchased 20.3 million shares of its common stock at a price of $17.25 per share.

At Dec. 31, 1991, *Retained Earnings* included $231 million ($168 million at Dec. 31, 1990), representing the Corporation's share of undistributed earnings of 20 percent to 50 percent-owned companies accounted for by the equity method. Dividends received from companies carried at equity aggregated $41 million in 1991, $37 million in 1990 and $10 million in 1989.

Certain consolidated international subsidiaries are restricted by borrowing arrangements, regulatory restraints or the laws of local governments as to their ability to transfer funds to the parent in the form of cash dividends, loans or advances. At Dec. 31, 1991, the amount of such restricted net assets was $40 million. In addition, there are similar restrictions on unconsolidated subsidiaries of $52 million.

In July 1989, the Board of Directors adopted a shareholder rights plan and declared a dividend payable on Aug. 31, 1989, of one Right for each outstanding share of common stock. Each Right entitles its holder, under certain circumstances, to buy a share of common stock at a purchase price of $85 (subject to adjustment).

The Rights may not be exercised until 10 days after a person or group acquires 20 percent or more of Union Carbide Corporation's common stock, or announces a tender offer that, if consummated, would result in 20 percent or more ownership of the common stock. Separate Rights certificates will not be issued and the Rights will not be traded separately from the stock until then.

Should an acquirer become the beneficial owner of 20 percent of the common stock, and under certain additional circumstances, Union Carbide Corporation shareholders (other than the acquirer) would have the right to buy common stock in Union Carbide Corporation, or in the surviving enterprise if the Corporation is acquired, having a value equal to two times the purchase price of the Right then in effect.

The Rights will expire on Aug. 31, 1999, unless redeemed prior to that date. The redemption price is 1 cent per Right. The Corporation's independent directors may redeem the Rights by a majority vote during the 10-day period following public announcement that a person or group has acquired 20 percent of Union Carbide Corporation's common stock.

19. Leases

Leases that meet the criteria for capitalization set forth in Statement of Financial Accounting Standards No. 13 have been classified and accounted for as capital leases. For operating leases, primarily involving distribution equipment and facilities, the future minimum rental payments under leases with remaining noncancelable terms in excess of one year are:

Year ending December 31,	Millions of dollars
1992	$113
1993	92
1994	73
1995	68
1996	64
Subsequent to 1996	531
Total minimum payments	941
Future sublease rentals	128
Net minimum rental commitments	$813

The present value of the net minimum rental commitments amounts to $500 million. Total lease and rental payments (net of sublease rentals of $9 million in 1991, $13 million in 1990 and $12 million in 1989) were $90 million, $83 million and $86 million for 1991, 1990 and 1989, respectively.

20. Retirement Programs

The noncontributory defined benefit retirement program of Union Carbide Corporation ("U.S. Retirement Program") covers substantially all U.S. employees and certain employees in other countries. Pension benefits are based primarily on years of service and compensation levels prior to retirement.

Pension coverage for employees of the Corporation's non-U.S. consolidated subsidiaries is provided, to the extent deemed appropriate, through separate plans. Obligations under such plans are systematically provided for by depositing funds with trustees, under insurance policies, or by book reserves.

Worldwide Retirement Program net pension cost applicable to continuing operations amounted to $28 million in 1991, $41 million in 1990 and $36 million in 1989. For discontinued operations (see Note 3) net pension cost amounted to $16 million in 1991, $14 million in 1990 and $12 million in 1989.

The components of net pension cost for the U.S. Retirement Program and non-U.S. plans in 1991, 1990 and 1989 are as follows[a]:

Millions of dollars		**1991**		1990		1989
Service cost—benefits earned during the period		**$ 79**		$ 92		$ 80
Interest cost on projected benefit obligation		**204**		196		183
Return on plan assets						
– Actual	**$(508)**		$ 36		$(517)	
– Unrecognized return	**279**	**(229)**	(261)	(225)	312	(205)
Amortization of net gain		**(10)**		(8)		(10)
Net pension cost		**$ 44**		$ 55		$ 48

The funded status of the U.S. Retirement Program and non-U.S. plans was as follows[a]:

Millions of dollars at December 31,	**1991**	1990
Actuarial present value of plan benefits:		
Accumulated benefit obligation, including vested benefits of $2,072 million at December 31, 1991, and $1,890 million at December 31, 1990	**$(2,262)**	$(2,017)
Projected benefit obligation	**$(2,672)**	$(2,519)
Fair value of plan assets, primarily invested in common stocks and fixed income securities	**$ 2,881**	$ 2,474
Plan assets in excess of (less than) projected benefit obligation	**$ 209**	$ (45)
Unamortized net asset at transition	**(137)**	(157)
Unamortized prior service cost	**73**	63
Unrecognized (gains) and losses—net	**(133)**	100
Accrued pension (cost) benefit	**$ 12**	$ (39)

a) A determination has not yet been made of the Retirement Program assets and obligations which will be transferred to UCIG in connection with the proposed spin-off. As a result, the disclosures in the preceeding tables include information for the entire program which includes amounts applicable to continuing operations and the discontinued business.

The actuarial assumptions used were as follows:

	1991	1990
Discount rate for determining projected benefit obligation	**8.00%**	8.5%
Rate of increase in compensation levels	**5.25%**	6.0%
Expected long-term rate of return on plan assets	**9.25%**	9.5%

Union Carbide Corporation and certain of its consolidated subsidiaries provide health care and life insurance benefits for eligible retired employees. These benefits are provided through various insurance companies and health care providers. The annual costs, which are based on the benefits paid during the year, are generally expensed as incurred. Total expenses applicable to continuing operations for 1991 amounted to $27 million ($26 million in 1990 and $23 million in 1989). Substantially all of these expenses related to domestic operations.

Statement of Financial Accounting Standards No. 106, Employers' Accounting for Postretirement Benefits Other Than Pensions, effective for years beginning after Dec. 15, 1992, will significantly change the accounting for retiree benefits other than pensions. The standard requires employers to account for retiree benefit obligations (principally health care) on an accrual basis, rather than on the current basis of "pay-as-you-go." When UCC adopts the standard in 1993, it is expected to have an adverse effect on stockholders' equity and reported future earnings. It will not affect the Corporation's cash flows because payments may continue on a "pay-as-you-go" basis.

The initial liability upon adoption of the standard can be either written off immediately or amortized over a 20-year period. Although the Corporation has not decided the method of transition, it is likely that the obligation will be charged to operations upon initial adoption of the standard. If the Corporation adopted the standard at Dec. 31, 1991, and elected immediate recognition, the benefit obligation related to continuing operations would have approximated $450 million, resulting in a one-time charge from the accounting change of approximately $300 million after taxes. The on-going incremental after-tax expense, i.e., the excess over the "pay-as-you-go" amount, would approximate $12 million. If the Corporation elected to amortize the initial obligation, the on-going incremental after-tax expense would approximate $27 million. Actual incremental expenses will depend upon factors to be determined at the time of adoption, including benefit levels, health care trends, and the discount factor used in determining the initial liability.

21. Incentive Plans

In 1988, stockholders approved the 1988 Union Carbide Long-Term Incentive Plan for key employees, which replaced the 1984 Union Carbide Stock Option Plan. The Plan provides for granting incentive and nonqualified stock options, stock appreciation rights (SAR's), exercise payment rights (EP's), grants of stock and performance awards. Performance awards can be paid in common stock, in other securities of the Corporation or in cash. The amount of any exercise payment may not exceed 60 percent of the amount by which the market price of the common stock on the date of exercise exceeds the option price. On exercise, the SAR's entitle the holder to receive in cash or common stock the amount by which the market price of the common stock (generally on the date of exercise) exceeds the option price. In June 1991, the Corporation cancelled all existing SAR awards while leaving the holder with the underlying stock options. The accumulated accruals relating to SAR awards were added to Paid-In Capital. Holders of options may be granted the right to receive payments of amounts equal to the regular cash dividends paid to holders of the Corporation's common stock during the period that the option is outstanding. The number of shares granted or subject to options may not exceed 15 million under the Plan. Option prices are equal to the closing price of the Corporation's common stock on the date of the grant as listed on the New York Stock Exchange composite transactions. Options generally become exercisable either one year or two years after such date. Options may not have a duration of more than 10 years.

No further awards may be made under Union Carbide's previous incentive plans. Some of the options granted under these plans are still outstanding and have terms similar to nonqualified stock options granted under the 1988 plan.

For SAR's and EP's granted, income is adjusted in each quarter to reflect the market price of the common stock.

Changes during 1991 in outstanding shares under option, SAR's and EP's were as follows:

	Shares under Option			
1991	Total	With SAR's	With EP's	Options Only
Outstanding at January 1	8,650,981	1,660,100	28,063	6,962,818
Granted during the year under the 1988 Union Carbide Long-Term Incentive Plan	3,278,300	355,000	—	2,923,300
Exercised during the year[a]	(83,267)	—	(3,930)	(79,337)
Canceled or expired during the year	(45,784)	—	—	(45,784)
Changes in option status during the year	—	(2,015,100)	—	2,015,100
Outstanding at December 31	11,800,230[b]	—	24,133	11,776,097

a) Options were exercised during 1991 at prices ranging from $1.07 to $18.75 per share. All were exercised for shares of common stock.

b) For outstanding shares under option at Dec. 31, 1991, option prices ranged from $1.07 to $30.13 per share. At Dec. 31, 1991, 6,571,113 shares were exercisable at prices ranging from $1.07 to $30.13 per share.

22. Commitments and Contingencies

The Corporation has a contractual obligation to purchase part of the output of a Canadian ethylene plant through mid-2004. The purchase price for the output is determined on a cost-of-service basis. Total purchases under this agreement were $46 million, $48 million and $46 million in 1991, 1990 and 1989, respectively. Additionally, Union Carbide has agreed to fund its portion of any cash deficiency in the ethylene plant's debt service costs. As of Dec. 31, 1991, that debt amounted to $45 million and projected 1992 interest costs are $4 million. This debt service cost is part of the fixed and determinable obligation identified below.

The Corporation has also entered into an eight-year agreement to purchase a portion of the output of a U.S. ethylene plant. The purchase price for the output will be based upon market prices subject to certain minimum price provisions. Purchases under this agreement are expected to commence in 1992.

The Corporation has entered into a three-year agreement to provide for the availability of terminal storage at a domestic location. The minimum purchase price for this agreement will be based on a fixed charge. Purchases under this agreement are expected to begin in 1992.

The net present value of the fixed and determinable portion of obligations under these purchase commitments at Dec. 31, 1991 (at current exchange rates, where applicable), are presented in the following table:

Millions of dollars	
1992	$43
1993	42
1994	38
1995	34
1996	29
1997 to expiration of contracts	81
Total	$267

At Dec. 31, 1991, the Corporation had additional contingent obligations of $252 million, principally for purchase and sale commitments related to the ordinary conduct of business and guarantees of outstanding loans and notes payable by UCIG and others. Guarantees made by the Corporation and UCC&P Inc. included above for certain UCIG debt and other obligations amounted to $105 million at Dec. 31, 1991. These guarantees are expected to be eliminated prior to the spin-off of UCIG.

The Corporation is also subject to loss contingencies resulting from environmental laws and regulations, which include obligations to remove or mitigate the effects on the environment of the disposal or release of certain wastes and substances at various sites. The Corporation's policy is to accrue environmental remediation costs for work at identified sites where an assessment has indicated that cleanup costs are probable and can be reasonably estimated. As additional sites are assessed and costs can be reasonably estimated, future charges against income are likely. Estimates of future costs of environmental protection are necessarily imprecise due to numerous uncertainties, including the impact of new laws and regulations, the availability and application of new and diverse technologies, the identification of new hazardous waste sites, and the determination of the Corporation's liability in proportion to that of other parties. Management believes these costs are likely to be substantial and expects them to be incurred over an extended period of time.

On Feb. 24, 1989, UCC&P Inc. and Union Carbide India Limited ("UCIL") paid the final settlement to the Union of India with respect to the Dec. 3, 1984, methyl isocyanate gas release at the UCIL plant in Bhopal, India. The $470 million settlement of all claims was ordered by the Supreme Court of India and accepted by the Union of India, UCC&P Inc. and UCIL. UCC&P Inc. is a 50.9 percent shareholder of UCIL. UCC&P Inc. paid $420 million and was credited an additional $5 million for the payment in that amount made by it to the Red Cross at the suggestion of U.S. Judge John F. Keenan. UCIL paid the Rupee equivalent of $45 million. The Supreme Court of India discharged the previous undertaking of UCC&P Inc. in the District Court at Bhopal to maintain unencumbered assets having a fair market value of $3 billion. The Supreme Court quashed all criminal proceedings related to the gas release, and the Supreme Court proceedings provided that the accused were deemed acquitted. On Dec. 22, 1989, the Supreme Court of India upheld the Bhopal Act under the Indian Constitution. The Bhopal Act was the main basis on which the Union of India represented the victims.

On Oct. 3, 1991, the Supreme Court of India, ruling on petitions to review its earlier settlement order, upheld the civil settlement of $470 million in its entirety; set aside that portion of the settlement that quashed the criminal prosecutions which were pending at the time of the settlement and that precluded any future criminal proceedings; required the Union of India to purchase, out of the settlement fund, a group medical insurance policy to cover 100,000 asymptomatic persons who may later develop symptoms; required the Union of India to make up any shortfall in the settlement fund; gave directions concerning the administration of the settlement fund; dismissed all outstanding petitions seeking review of the settlement; and requested UCC&P Inc. and UCIL to fund the capital and operating costs of a hospital in Bhopal for eight years, which the Court estimated would require "around Rs. 50 crores" (approximately $19 million), with the land to be provided free by the State of Madhya Pradesh. On Oct. 17, 1991, the Corporation and UCIL announced that together they would provide the Government of India with up to Rs. 50 crores for a hospital to be built in Bhopal by the

Government. On Feb. 1, 1992, in the criminal proceedings the Magistrate in Bhopal declared UCC&P Inc. and Union Carbide Eastern, Inc. ("UC Eastern") to be "absconders" and stated that their failure to appear in Court would result in the attachment of their properties. UC Eastern, which was a subsidiary of UCC&P Inc., has been dissolved and no longer exists. In the opinion of counsel for the Corporation, under generally recognized legal principles, the criminal proceedings in India should not have adverse financial consequences for the Corporation outside of India.

All of the suits with respect to the gas release that were brought in the U.S. prior to the settlement have been dismissed, except two suits in a state court, one of which was reactivated after dismissal. At an appropriate time, the settlement will be placed before that court. In October 1990, two suits were filed in Texas State Courts with respect to the gas release seeking compensatory and punitive damages. The two suits were transferred to Federal District Courts and subsequently dismissed on the ground of *forum non conveniens.*

In addition to the above, the Corporation and its consolidated subsidiaries are involved in a number of lawsuits and claims with both private and governmental parties. These cover a wide range of matters, including, but not limited to: trade regulation; product liability; utility regulation; Federal regulatory proceedings; health, safety and environmental matters; patents; contracts and taxes. In some of these cases, the remedies that may be sought or damages claimed are substantial.

While it is impossible at this time to determine with certainty the ultimate outcome of any of the lawsuits and claims referred to in this note, management believes that adequate provisions have been made for probable losses with respect thereto and that such ultimate outcome, after provisions therefor, will not have a material adverse effect on the consolidated financial position of the Corporation but could have a material effect on consolidated results of operations in a given year. Should any losses be sustained in connection with any of the matters referred to in this note in excess of provisions therefor, they will be charged to income in the future.

Management's Statement of Responsibility for Financial Statements

Union Carbide's financial statements are prepared by management, which is responsible for their fairness, integrity and objectivity. The accompanying financial statements have been prepared in conformity with generally accepted accounting principles applied on a consistent basis and, accordingly, include amounts that are estimates and judgments. All historical financial information in this annual report is consistent with the accompanying financial statements.

Union Carbide maintains accounting systems, including internal accounting controls monitored by a staff of internal auditors, that are designed to provide reasonable assurance of the reliability of financial records and the protection of assets. The concept of reasonable assurance is based on recognition that the cost of a system must not exceed the related benefits. The effectiveness of those systems depends primarily upon the careful selection of financial and other managers, clear delegation of authority and assignment of accountability, inculcation of high business ethics and conflict-of-interest standards, policies and procedures for coordinating the management of corporate resources and the leadership and commitment of top management.

Union Carbide's financial statements are audited by KPMG Peat Marwick, independent certified public accountants, in accordance with generally accepted auditing standards. These standards provide for the auditors to consider the Corporation's internal control structure to the extent they deem necessary in order to issue their opinion on the financial statements.

The Audit Committee of the Board of Directors, which consists solely of nonemployee directors, is responsible for overseeing the functioning of the accounting system and related controls and the preparation of annual financial statements. The Audit Committee recommends to the Board of Directors the selection of the independent auditors, subject to the approval of shareholders. The Audit Committee periodically meets with the independent auditors, management and internal auditors to review and evaluate their accounting, auditing and financial reporting activities and responsibilities. The independent and internal auditors have full and free access to the Audit Committee and meet with the committee, with and without management present.

Robert D. Kennedy

Robert D. Kennedy
Chairman and Chief Executive Officer

John K. Wulff

John K. Wulff
Vice President, Controller and
Principal Accounting Officer

Danbury, Conn.
February 10, 1992

KPMG Peat Marwick

To the Stockholders and Board of Directors of Union Carbide Corporation

We have audited the accompanying consolidated balance sheet of Union Carbide Corporation and subsidiaries as of December 31, 1991 and 1990, and the related consolidated statements of income, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 1991. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits.

We conducted our audits in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Union Carbide Corporation and subsidiaries at December 31, 1991 and 1990, and the results of their operations and their cash flows for each of the years in the three-year period ended December 31, 1991, in conformity with generally accepted accounting principles.

KPMG Peat Marwick

Stamford, Connecticut
February 10, 1992

Information for Investors

1992 Annual Meeting

The 1992 annual meeting of stockholders will be held on Wednesday, April 22, in the Grand Ballroom of the Danbury Hilton and Towers, 18 Old Ridgebury Road, Danbury, CT 06810, beginning at 10 a.m.

A notice of annual meeting and proxy statement, and a proxy voting card, are mailed to each stockholder in March, together with a copy of the current annual report.

General Offices

The general offices of Union Carbide Corporation are located at 39 Old Ridgebury Road, Danbury, CT 06817-0001 (Tel. 203-794-2000).

Inquiries from the public about Union Carbide and its products and services should be directed to the Corporate Information Center, Union Carbide Corporation, Section N-0, 39 Old Ridgebury Road, Danbury, CT 06817-0001 (Tel. 203-794-5300).

Stock Exchanges

Union Carbide stock is traded primarily on the New York Stock Exchange (ticker symbol: UK). The stock is also listed on the Midwest Stock Exchange and on the Pacific Stock Exchange in the U.S., and overseas on the exchanges in Amsterdam, Basel, Brussels, Frankfurt, Geneva, Lausanne, London, Paris and Zurich.

Stock Records and Transfer

The Corporation acts as its own stock transfer agent through Shareholder Services, Union Carbide Corporation, Section G-2, 39 Old Ridgebury Road, Danbury, CT 06817-0001 (Tel. 203-794-3350).

Shareholder Services maintains stockholder records, transfers stock and can answer questions regarding stockholders' accounts, including dividend reinvestment accounts. Stockholders wishing to transfer stock to someone else or to change the name on a stock certificate should contact Shareholder Services for assistance.

The Registrar is Manufacturers Hanover Trust Company of New York, NY.

Dividend Reinvestment

Stockholders of record may purchase shares directly from the Corporation through Union Carbide's Dividend Reinvestment and Stock Purchase Plan. Under the plan, shares may be purchased from the Corporation free of commissions and service charges.

A prospectus explaining the plan in detail may be obtained from Shareholder Services, Union Carbide Corporation, Section G-2, 39 Old Ridgebury Road, Danbury, CT 06817-0001 (Tel. 203-794-2212).

Stockholder Inquiries

Inquiries about stockholder accounts and dividend reinvestment should be directed to Shareholder Services, Union Carbide Corporation, Section G-2, 39 Old Ridgebury Road, Danbury, CT 06817-0001.

Inquiries from investors and investment-related questions about Union Carbide should be directed to the Investor Relations Department, Union Carbide Corporation, Section D-4, 39 Old Ridgebury Road, Danbury, CT 06817-0001 (Tel. 203-794-6440).

A package of financial material that recapitulates quarterly results is available on written request to Investor Relations at the address above.

Form 10-K Available

A Form 10-K Report for the year ended Dec. 31, 1991, will be available in April of 1992. A copy without exhibits may be obtained without charge on written request to the Secretary of Union Carbide Corporation, Section E-3, 39 Old Ridgebury Road, Danbury, CT 06817-0001.

Union Carbide annually publishes a list of organizations receiving charitable, educational, cultural or similar grants of $5,000 or more. This list is available to any stockholder on written request to the Secretary at the address above.

Environmental Progress Report

Union Carbide's Environmental Progress Report contains information on subjects such as the company's emissions performance; technologies we have developed for reducing or eliminating pollution; and an overview of some community involvement activities in locations where we operate. To obtain a copy, write to: Union Carbide Corporation, Public Affairs Department, Section C-2, Danbury, CT 06817-0001.

Directors and Officers

Directors

John J. Creedon (1,2,3,5)
Retired President and Chief Executive Officer of Metropolitan Life Insurance Company

C. Fred Fetterolf (1,2,5,6)
Director of various corporations; Retired Director, President and Chief Operating Officer of Aluminum Company of America

Joseph E. Geoghan (3,7)
Vice-President, General Counsel and Secretary of Union Carbide Corporation

Harry J. Gray (2,3,4)
Chairman of the Executive Committee, American Medical International, Inc.

James M. Hester (1,3,6,7)
President, The Harry Frank Guggenheim Foundation

Vernon E. Jordan, Jr. (2,4,6,7)
Partner, Akin, Gump, Hauer & Feld

Robert D. Kennedy (3)
Chairman and Chief Executive Officer of Union Carbide Corporation

Ronald L. Kuehn, Jr. (2,4,5)
Director, Chairman, President and Chief Executive Officer of Sonat, Inc.

H. William Lichtenberger (3,4)
President and Chief Operating Officer of Union Carbide Corporation

C. Peter McColough (2,3,5,7)
Director and Retired Chairman of the Board of Xerox Corporation

Rozanne L. Ridgway (1,6,7)
President, Atlantic Council of the United States

Alice M. Rivlin (4,5,6,7)
Visiting Professor, George Mason University

William S. Sneath (3,4,5,6)
Director of various corporations; Retired Chairman and Chief Executive Officer of Union Carbide Corporation

Russell E. Train (1,5,6,7)
Chairman of World Wildlife Fund and The Conservation Foundation

NOTES

1 Member of Audit Committee (Chairman: John J. Creedon)
2 Member of Compensation & Management Development Committee (Chairman: Ronald L. Kuehn, Jr.)
3 Member of Executive Committee (Chairman: Robert D. Kennedy)
4 Member of Finance & Pension Committee (Chairman: Harry J. Gray)
5 Member of Health, Safety & Environmental Affairs Committee (Chairman: Russell E. Train)
6 Member of Nominating Committee (Chairman: Vernon E. Jordan, Jr.)
7 Member of Public Policy Committee (Chairman: James M. Hester)

Officers

Robert D. Kennedy
Chairman of the Board and Chief Executive Officer

H. William Lichtenberger (1)
President and Chief Operating Officer

William H. Joyce
Executive Vice-President, Operations

Joseph S. Byck
Vice-President, Strategic Planning

John A. Clerico (2)
Vice-President, Treasurer and Chief Financial Officer

Joseph E. Geoghan
Vice-President, General Counsel and Secretary

Edgar G. Hotard
Vice-President, President of Union Carbide Industrial Gases, Inc.

Malcolm A. Kessinger
Vice-President, Human Resources

Gilbert E. Playford (3)
Vice-President, Treasurer and Principal Financial Officer

O. Jules Romary
Vice-President, Public Affairs and Investor Relations

Ronald Van Mynen
Vice-President, Health, Safety and Environmental Affairs

John K. Wulff
Vice-President, Controller and Principal Accounting Officer

NOTES

1 Mr. Lichtenberger has been designated Chairman and Chief Executive Officer of the Industrial Gases company effective with the spin-off of the Industrial Gases business.
2 Mr. Clerico has been designated as Vice-President, Treasurer and Chief Financial Officer of the Industrial Gases company effective with the spin-off of the Industrial Gases business.
3 Mr. Playford has been designated as Vice-President, Treasurer and Principal Financial Officer of Union Carbide Corporation effective with the spin-off of the Industrial Gases business.

UNION CARBIDE

Union Carbide Corporation
39 Old Ridgebury Road
Danbury, CT 06817-0001

This page is a reference page used to track documents internally for the Division of Oil, Gas and Mining

Mine Permit Number M0370006 Mine Name Rim - Columbus
Operator Denison mine (USA) Date February 10, 1992
TO ______ FROM ______

__CONFIDENTIAL __BOND CLOSURE __LARGE MAPS X EXPANDABLE
__MULTIPUL DOCUMENT TRACKING SHEET __NEW APPROVED NOI
__AMENDMENT _OTHER ______

Description YEAR-Record Number

__NOI X Incoming __Outgoing __Internal __Superceded

Union Carbide Corporation
Annual Report 1991

__NOI __Incoming __Outgoing __Internal __Superceded

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__TEXT/ 81/2 X 11 MAP PAGES __11 X 17 MAPS __LARGE MAP

COMMENTS: ______

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